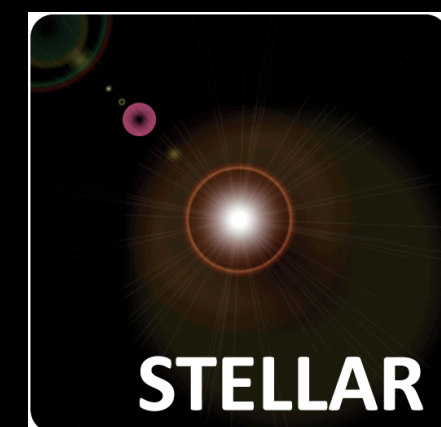
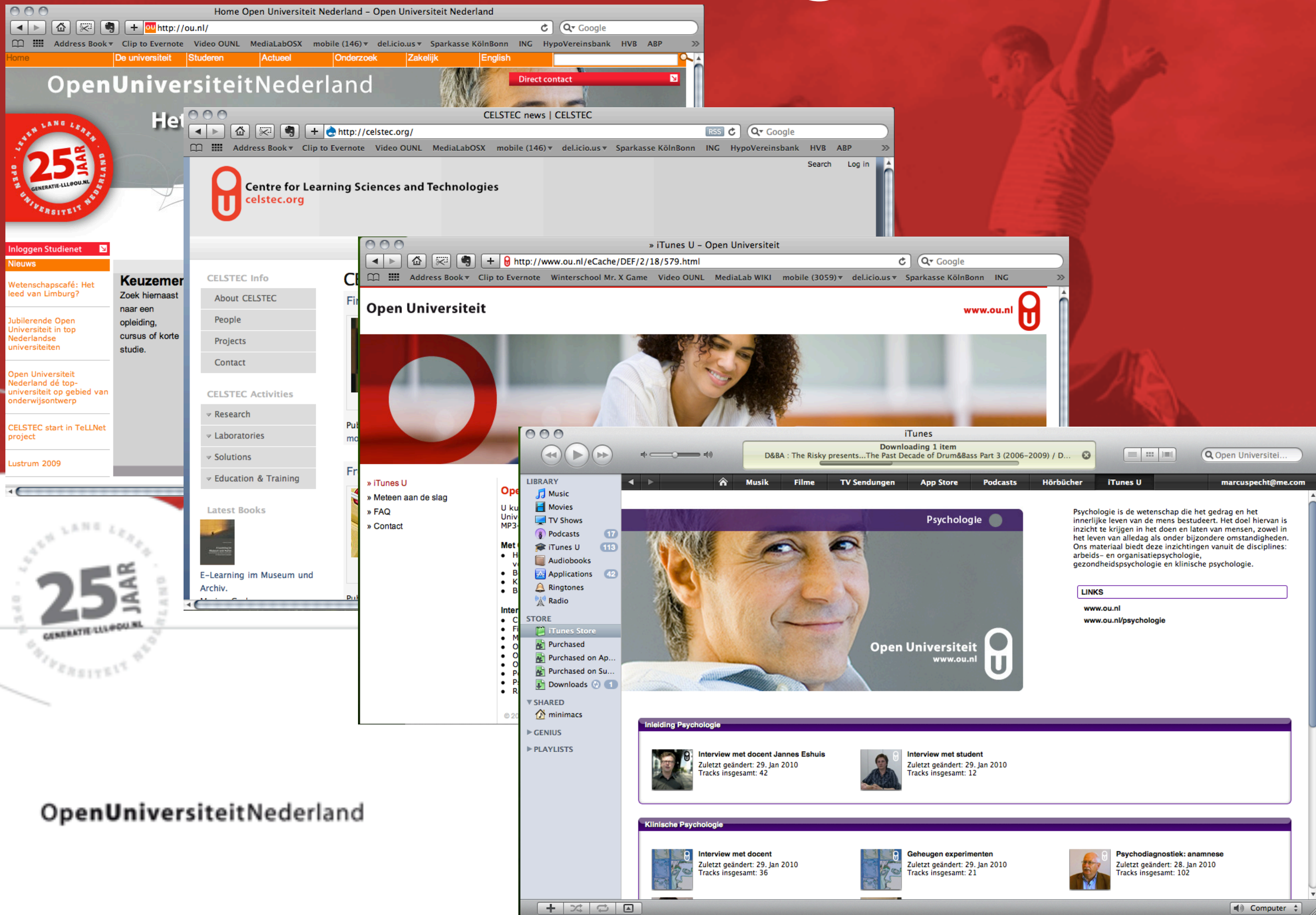


Ambient Information Channels for Learning in Context

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Centre for Learning Sciences and Technology
@ The Open University of the Netherlands
dspace.ou.nl



OUNL and CELSTEC.org



Activities of CELSTEC

- Three programmes, each with three themes:
 - Learning and Cognition
 - Learning Networks for Professional Development
 - Learning Media
- Each programme integrates three activities:
 - Research Activities
 - Laboratory Activities for Open Innovations
 - Providing Solutions and Services to the market
- Institute for Education & Training
 - MSc Learning Sciences
 - Commercial Training (provided by the staff of 3 programmes)
- Temporary Strategic Programmes
 - Lifelong Learning Services
 - OUNL related programmes (e.g. IPO)
 - Open Educational Resources

CELSTEC
celstec.org



PARIS
LONDON
AIX EN PROVENCE
ANVERS
MONTPELLIER
TOKYO
AMSTERDAM
GRENOBLE
LOS ANGELES
NEW YORK
BERN
AVIGNON
LAUSANNE
GENEVE
PAU
CLERMONT FERRAND
LYON
HONG KONG
ROTTERDAM
BERLIN
BARCELONE
AUSTRALIA
ISTANBUL
DHAKA
MANCHESTER
MARSEILLE
BANGKOK
BASTIA
MOMBASA
LJUBLJANA
NEWCASTLE
VIENNA
COLOGNE
COTE D'AZUR
BILBAO
KATMANDU
VARANASI (BENARES)



AROUND THE WORLD



MADE ON EARTH BY INVADER

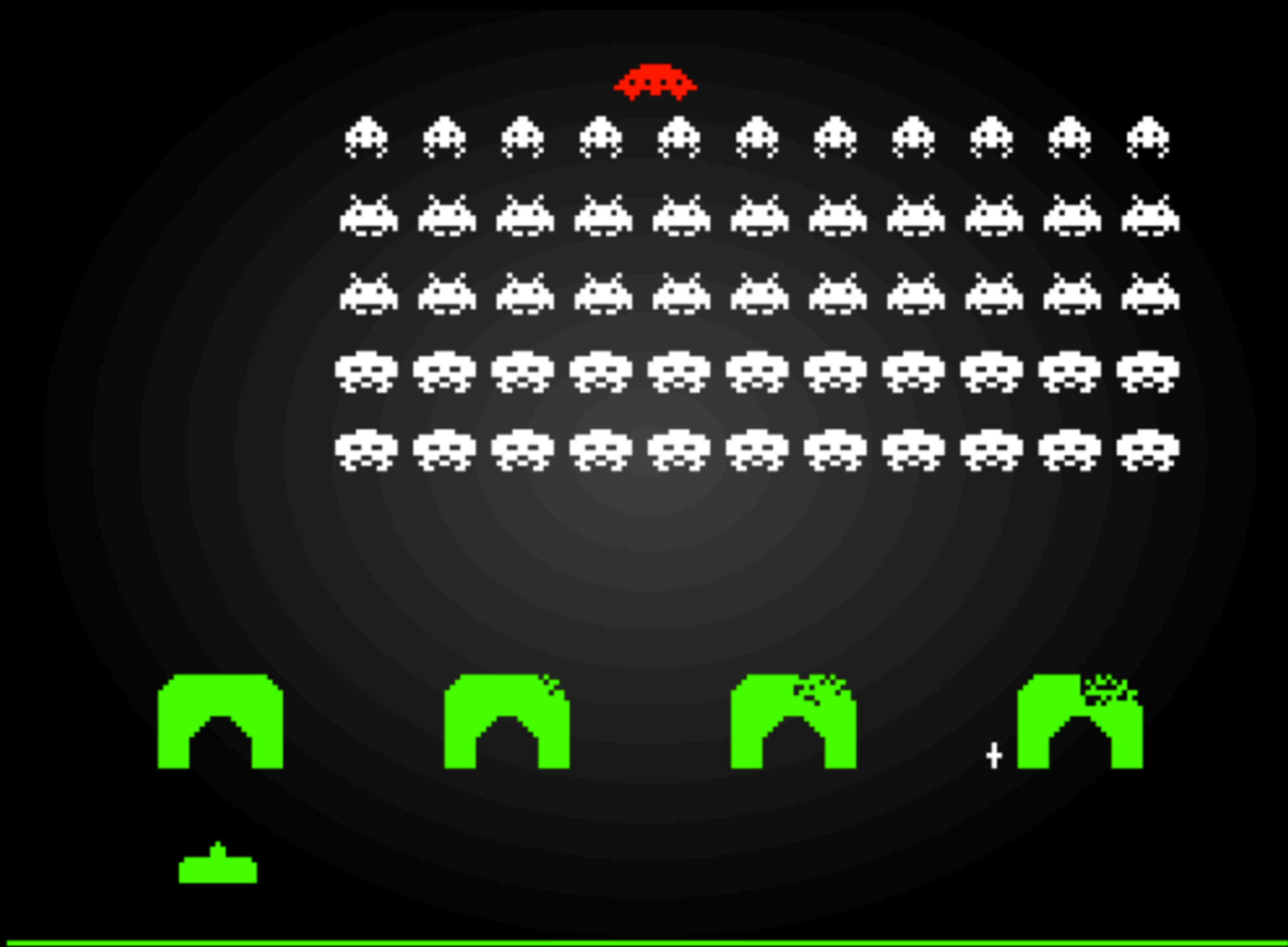
<http://www.space-invaders.com/>

#1 Technology Invasion

#2 Learning in invaded land

#3 Ambient Information Channels

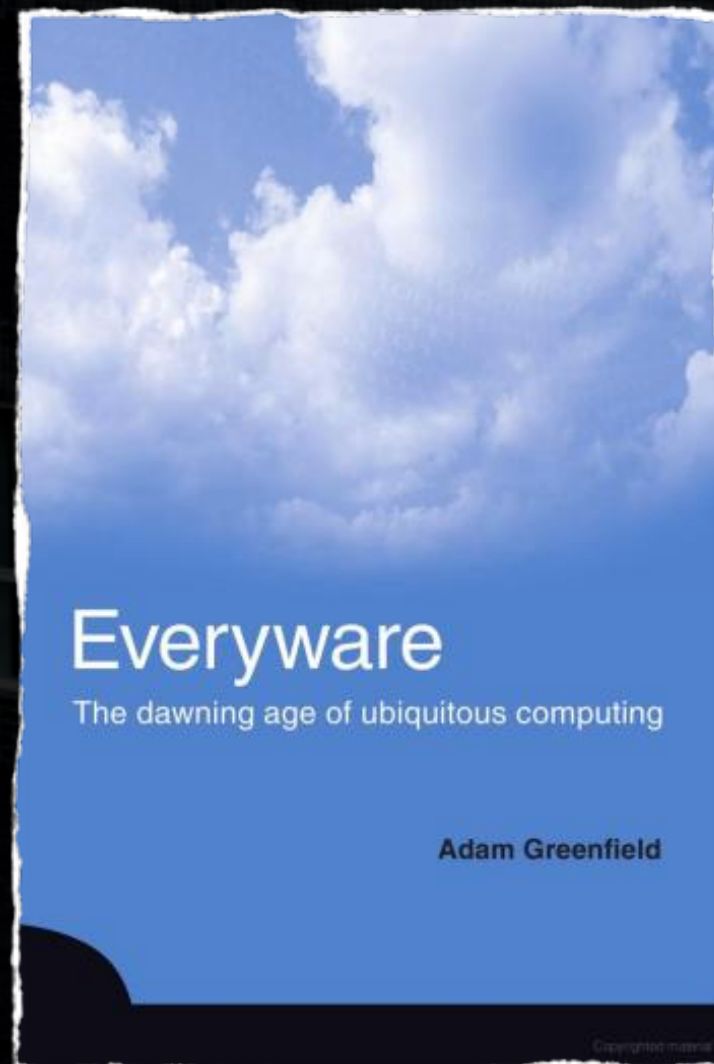
#4 Build your Channels



1: Invaded Land



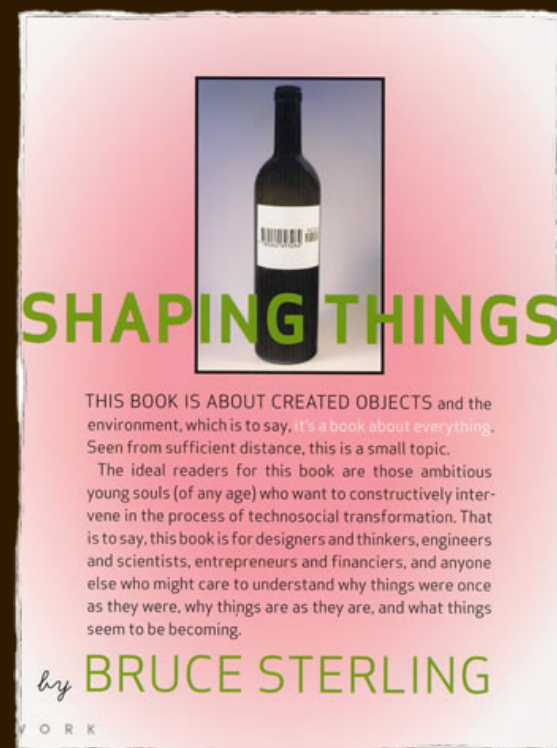
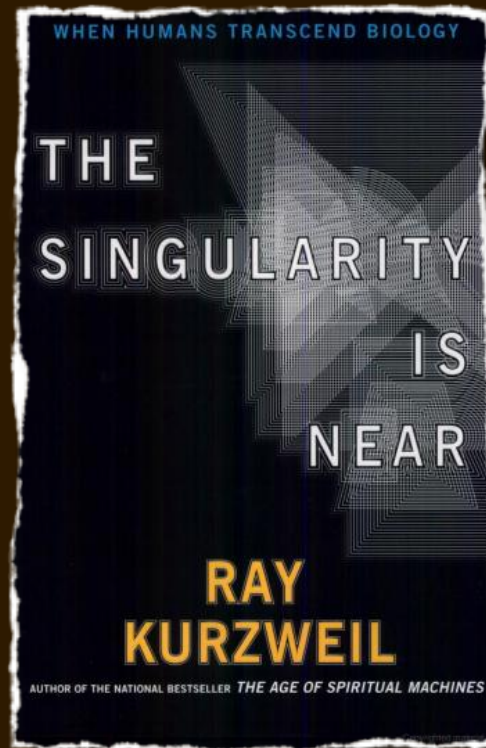
computers become ubiquitous
and adapt to their environment



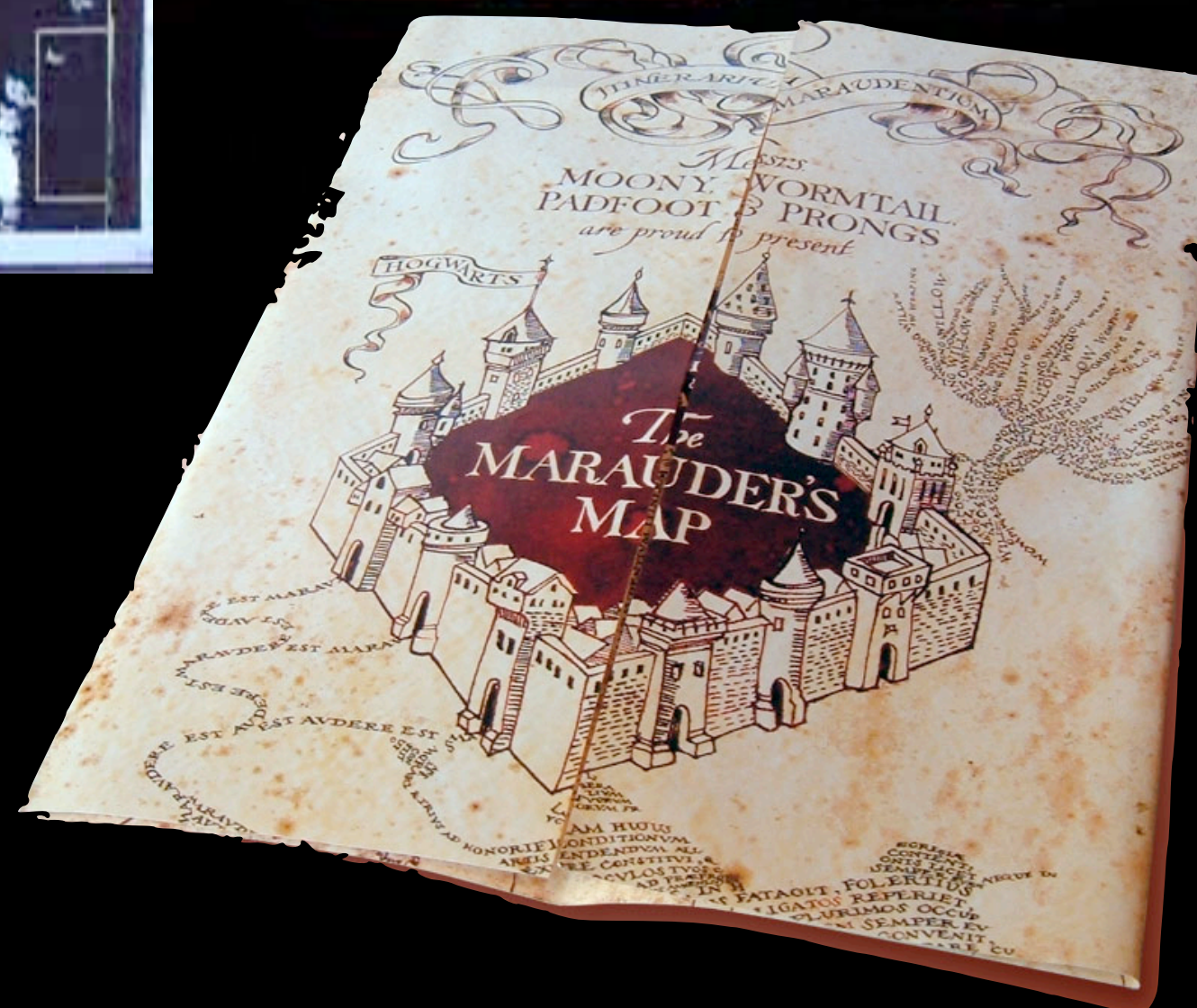
body network sensors, **rooms** intelligent carpets, wall colour, or gesture tracking, **building**, architects already create completely new facades for buildings, **public places** and city planning new artefacts will enable dynamic routing and highlighting of space

Sybre A. Stüvel, "Colours and bricks" via Flickr, Creative Commons Attribution.

Enhanced Environments



Fast Human Enhancements



Magic Artefacts

No Phones.
No Internet.

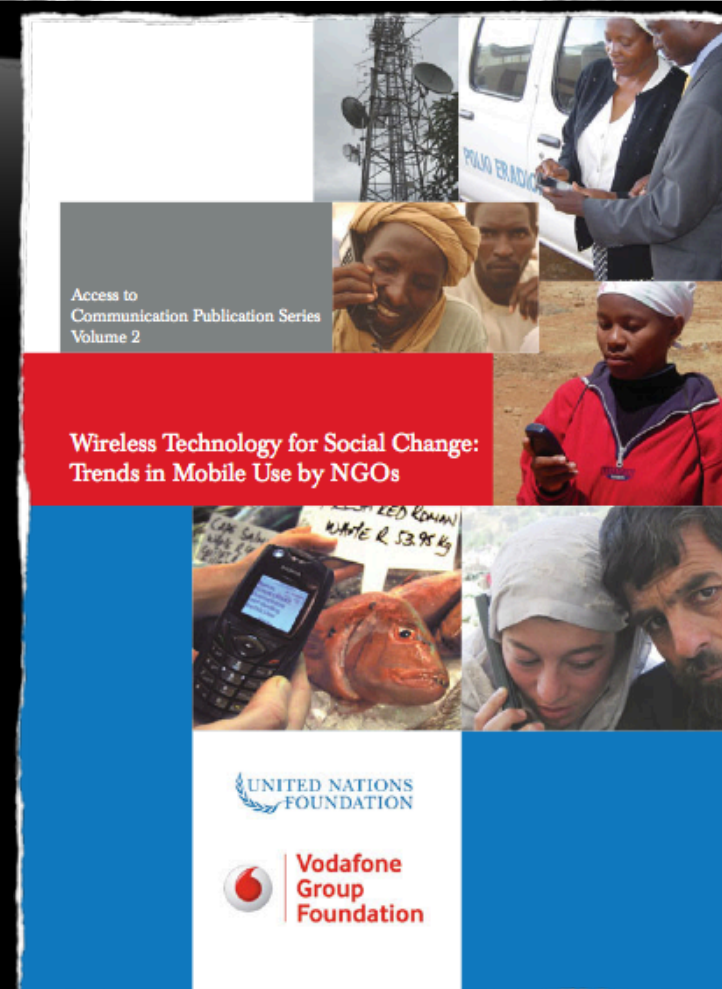


An elevator to the Moon.

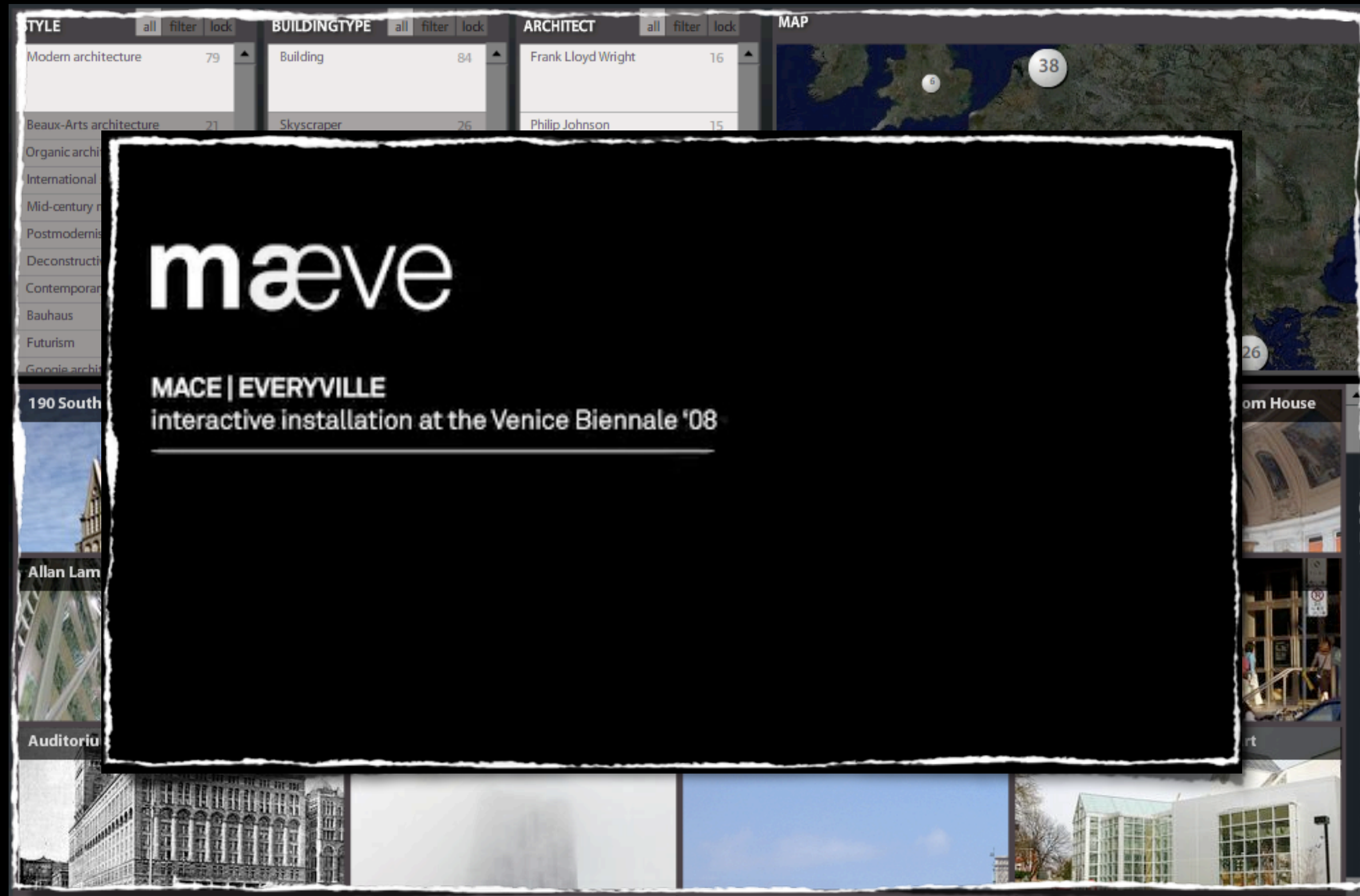
Think about it !



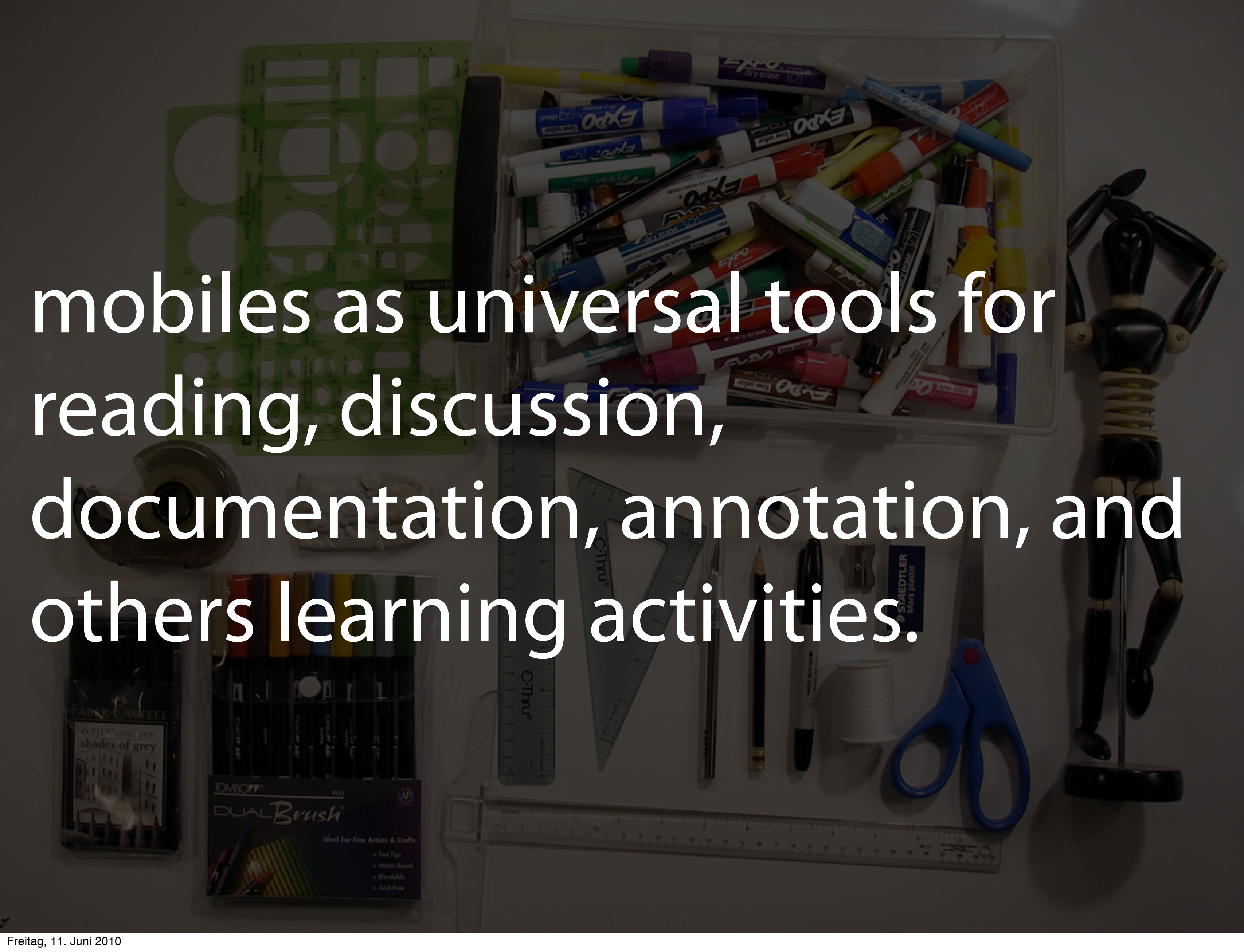
Each year **1.2 billion new phones**, Information can be accessed not only in city centres but much more important in **rural areas**, information will **grow even more rapidly**, mobile devices become more **context-aware**, new **user interfaces**



Mobile Access



Open Educational Content and Metadata: MACE Project

A top-down view of a collection of drawing and design tools. In the upper right, a clear plastic container is filled with numerous Expo brand dry-erase markers in various colors. To the left of this container is a green plastic stencil with circular and rectangular cutouts. Below the stencil, a black compass is visible. In the lower left, there are two boxes of pens: one labeled 'FABER-CASTELL 6 Pitt artist pen shades of grey' and another labeled 'TOMBOW DUAL Brush'. A long, thin ruler is positioned horizontally across the lower middle. To the right of the ruler, a pair of blue-handled scissors is open. Further right, a black and silver mechanical arm or compass is visible. The background is a light-colored surface.

mobiles as universal tools for
reading, discussion,
documentation, annotation, and
others learning activities.



Mobile Phones are still considered as a toy or non-learning device in the classroom.

referential applications

data collection apps

location aware services

collaborative apps



While a variety of senseful
learning practices have already
been described in 2002.

Sensors for learning


multi-method assessment measuring real world activities, long-term assessment, personal interaction logs, from formal to formative assessment

Displays for learning

embedded displays, reflection in and about action, anywhere anytime delivery, multimodal displays, personal and shared displays



2: Learning in invaded land

The image shows the cover of 'The Horizon Report 2009 Edition'. The background is a bright blue sky with scattered white clouds. The title 'THE HORIZON REPORT' is centered in a bold, dark blue, sans-serif font. Below it, '2009 EDITION' is written in a smaller, lighter blue, sans-serif font.

THE HORIZON REPORT

2009 EDITION

MOBILES

Time-to-Adoption Horizon: One Year or Less

The unprecedented evolution of mobiles continues to generate great interest. The idea of a single portable device that can make phone calls, take pictures, record audio and video, store data, music, and movies, and interact with the Internet — all of it — has become so interwoven into our lifestyles that it is now surprising to learn that someone does not carry one. As new devices continue to enter the market, new features and new capabilities are appearing at an accelerated pace. One recent feature — the ability to run third-party applications — represents a fundamental change in the way we regard mobiles and opens the door to myriad uses for education, entertainment, productivity, and social interaction.

uses for education, entertainment, productivity, and social interaction.

applications — represents a fundamental change in the way we regard mobiles and opens the door to myriad uses for education, entertainment, productivity, and social interaction.



Connecting the World and Digital Media

how do humans
learn with
augmented objects ?



how can we unleash the power
of **context** for the design of
ubiquitous learning?

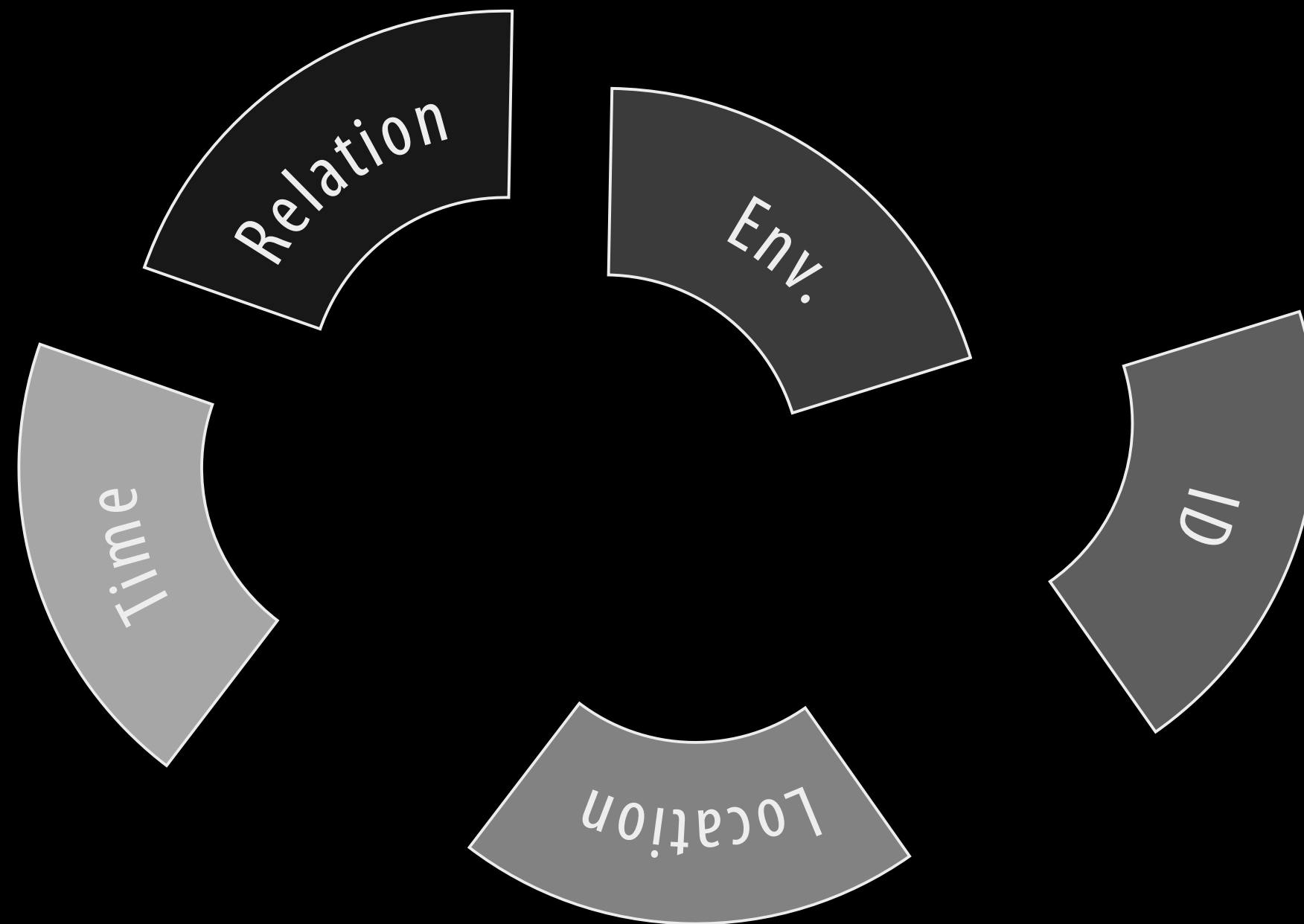
context gives meaning, The term context is used in different research disciplines. Linguistics makes two claims about context. Context is defined as the text in which a word or passage appears and which helps ascertain its meaning. the surroundings, circumstances, environment, background or settings which determine, specify, or clarify the meaning of an event.

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Zimmermann, A., Lorenz, A., & Specht, M. (2005). Personalization and Context- Management. User Modeling and User Adaptive Interaction (UMUAI), Special Issue on User Modeling in Ubiquitous Computing, (15), 275-302.



Context Dimensions

De Jong, T., Specht, M., & Koper, R. (2008). A Reference Model for Mobile Social Software for Learning. *International Journal of Continuing Engineering Education and Life-Long Learning (IJCEELL)*. 18(1), 118-138.

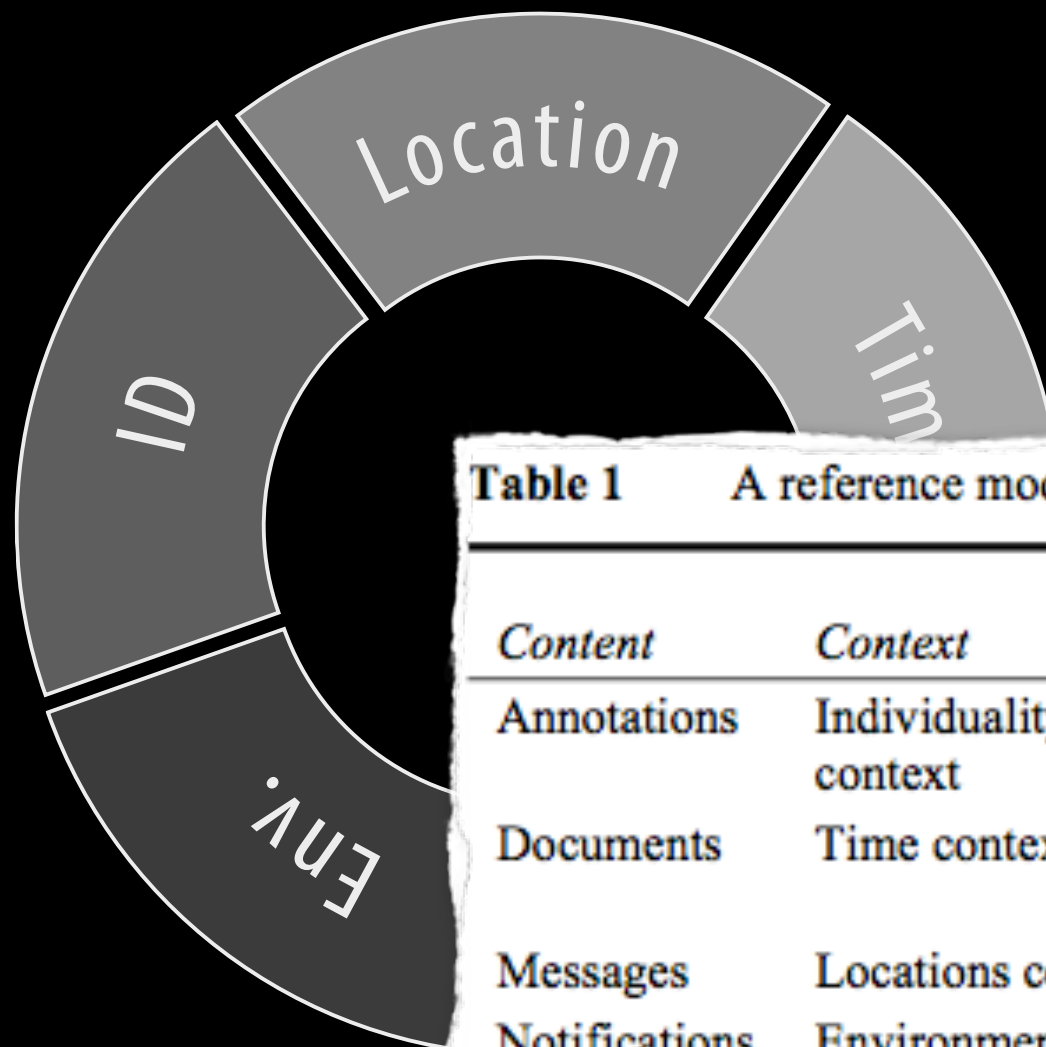


Table 1 A reference model for mobile social software for learning

| <i>Content</i> | <i>Context</i> | <i>Purpose</i> | <i>Information flow</i> | <i>Pedagogical model</i> |
|----------------|---------------------------------|---|-------------------------|--------------------------|
| Annotations | Individuality context | Sharing content and knowledge | One-to-one | Behaviourist |
| Documents | Time context | Facilitate discussion and brainstorming | One-to-many | Cognitive |
| Messages | Locations context | Social awareness | Many-to-one | Constructivist |
| Notifications | Environment or activity context | Guide communication | Many-to-many | Social constructivist |
| | Relations context | Engagement and immersion | | |

Context Dimensions

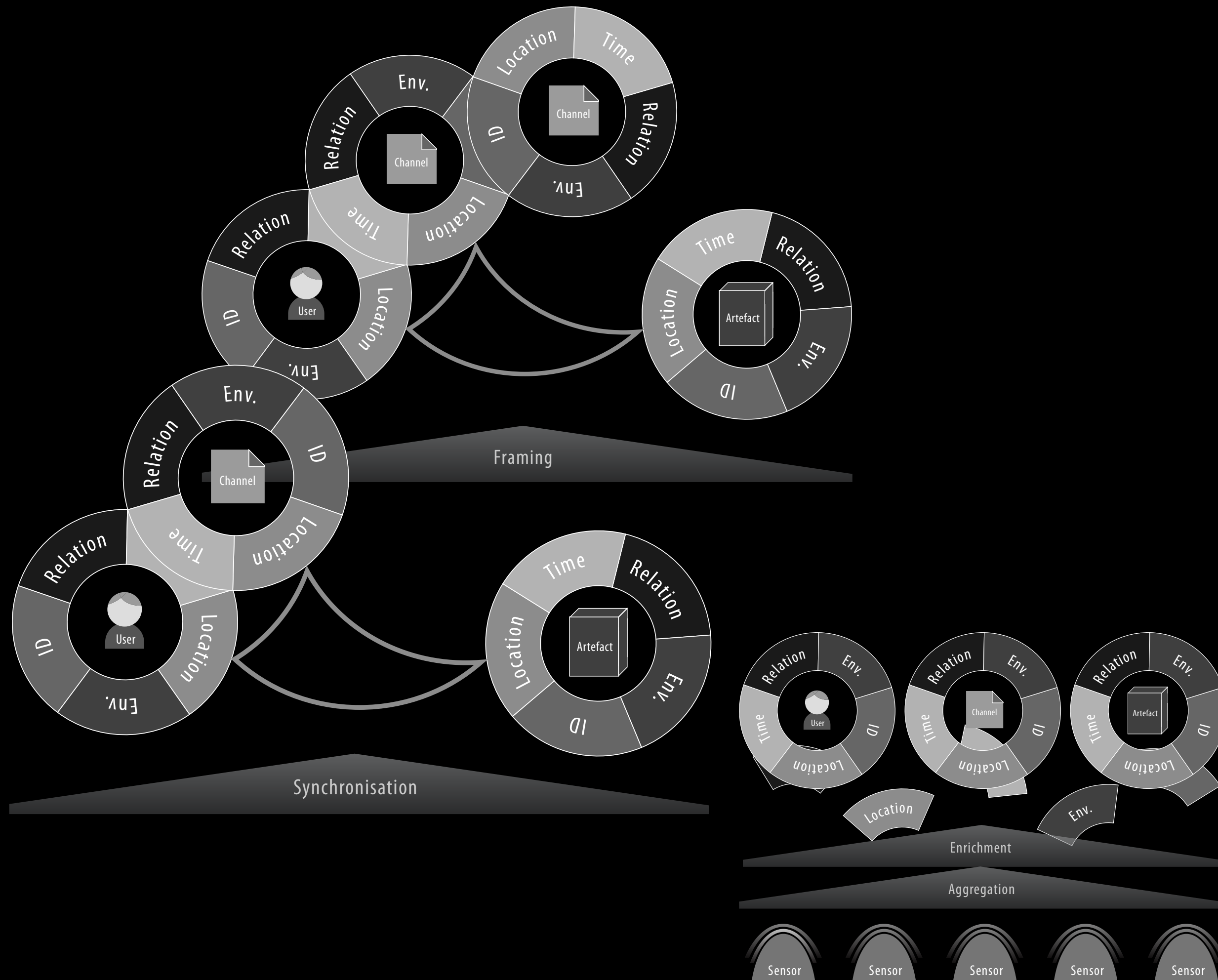


SenseCam in Context

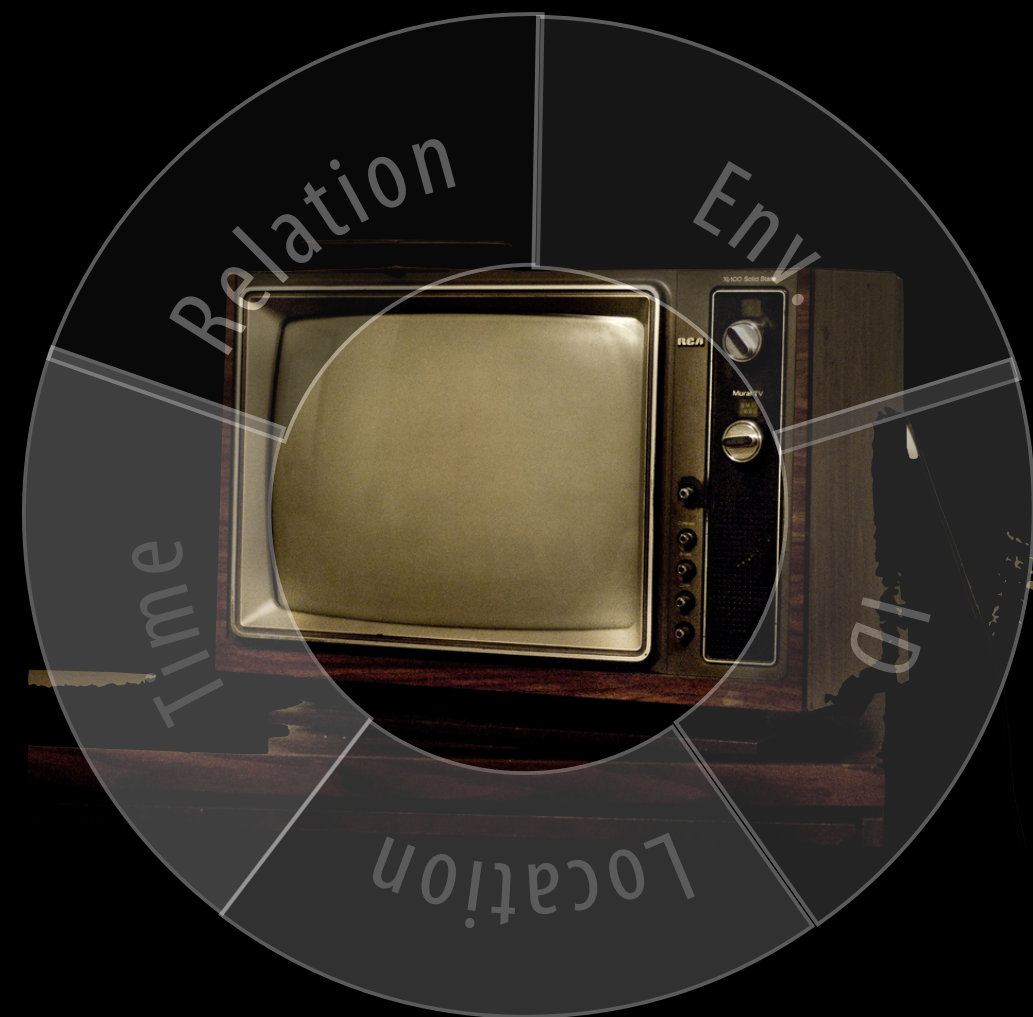


three: A Model for all of this Ambient Information Channels

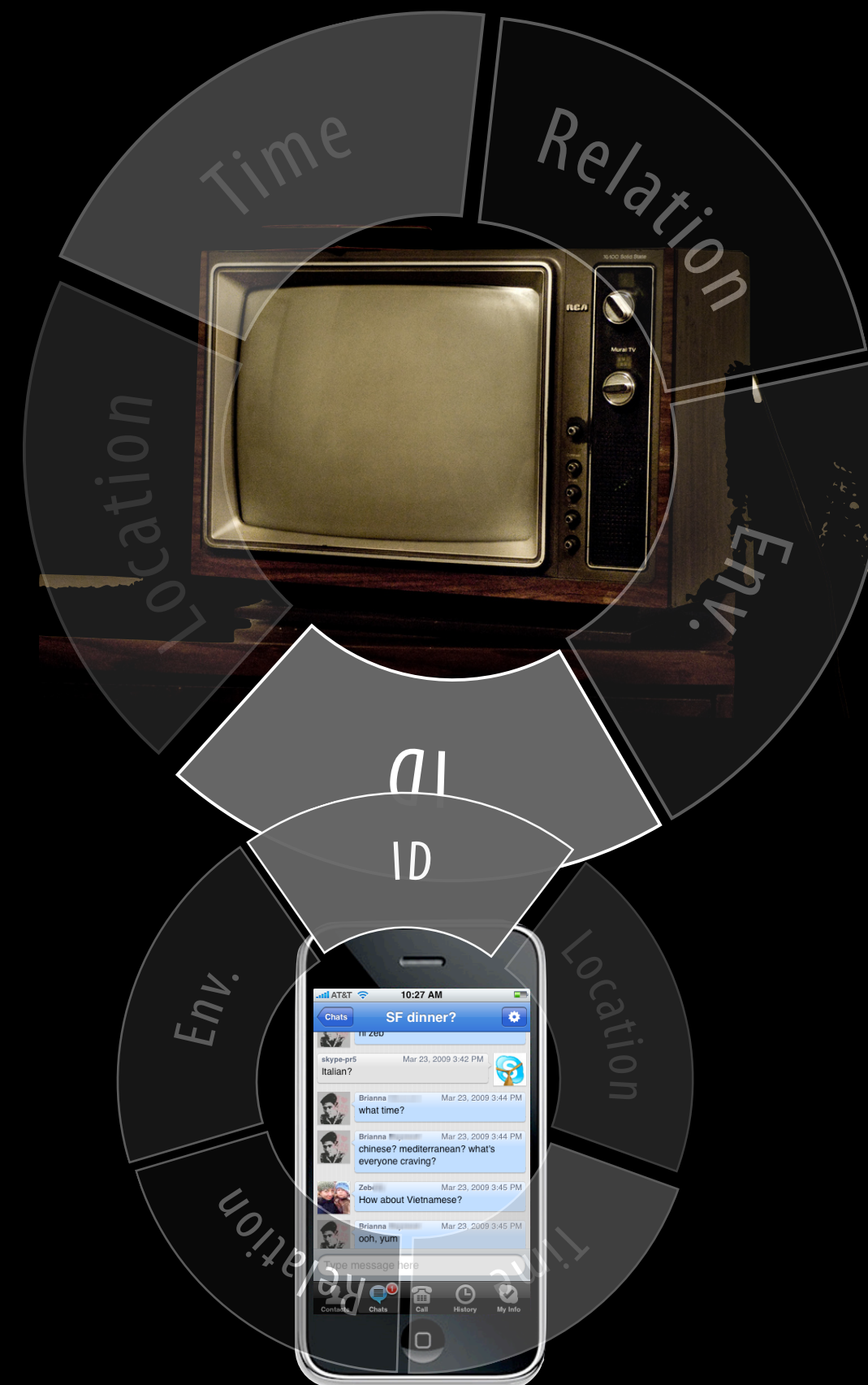


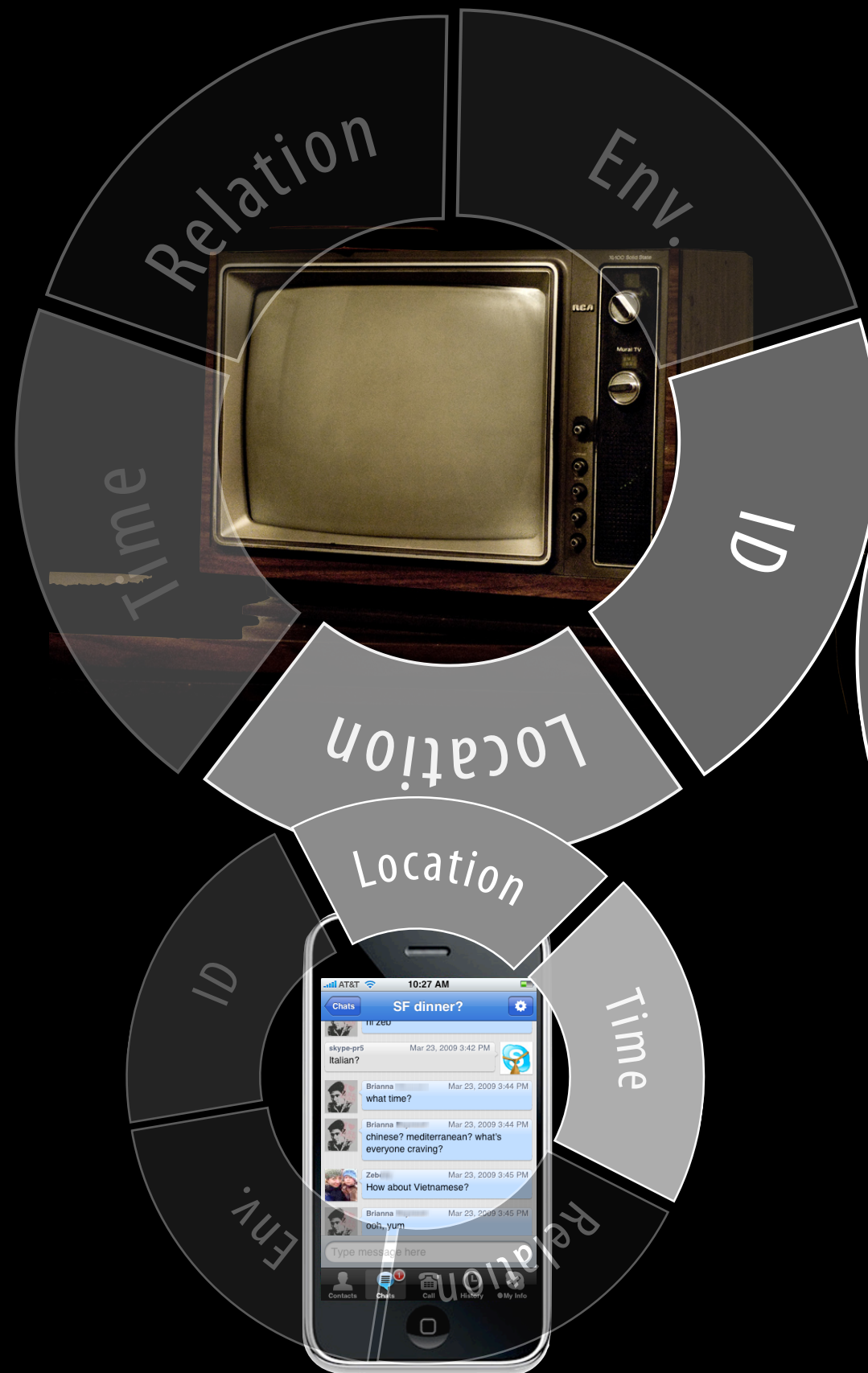


AICHE Processes



Contextualised TV







4: CELSTEC Research

Content in Context

contextualised delivery, media creation in learning situations, synchronisation of learning activities, ubiquitous learning environments, mixed reality mash-ups

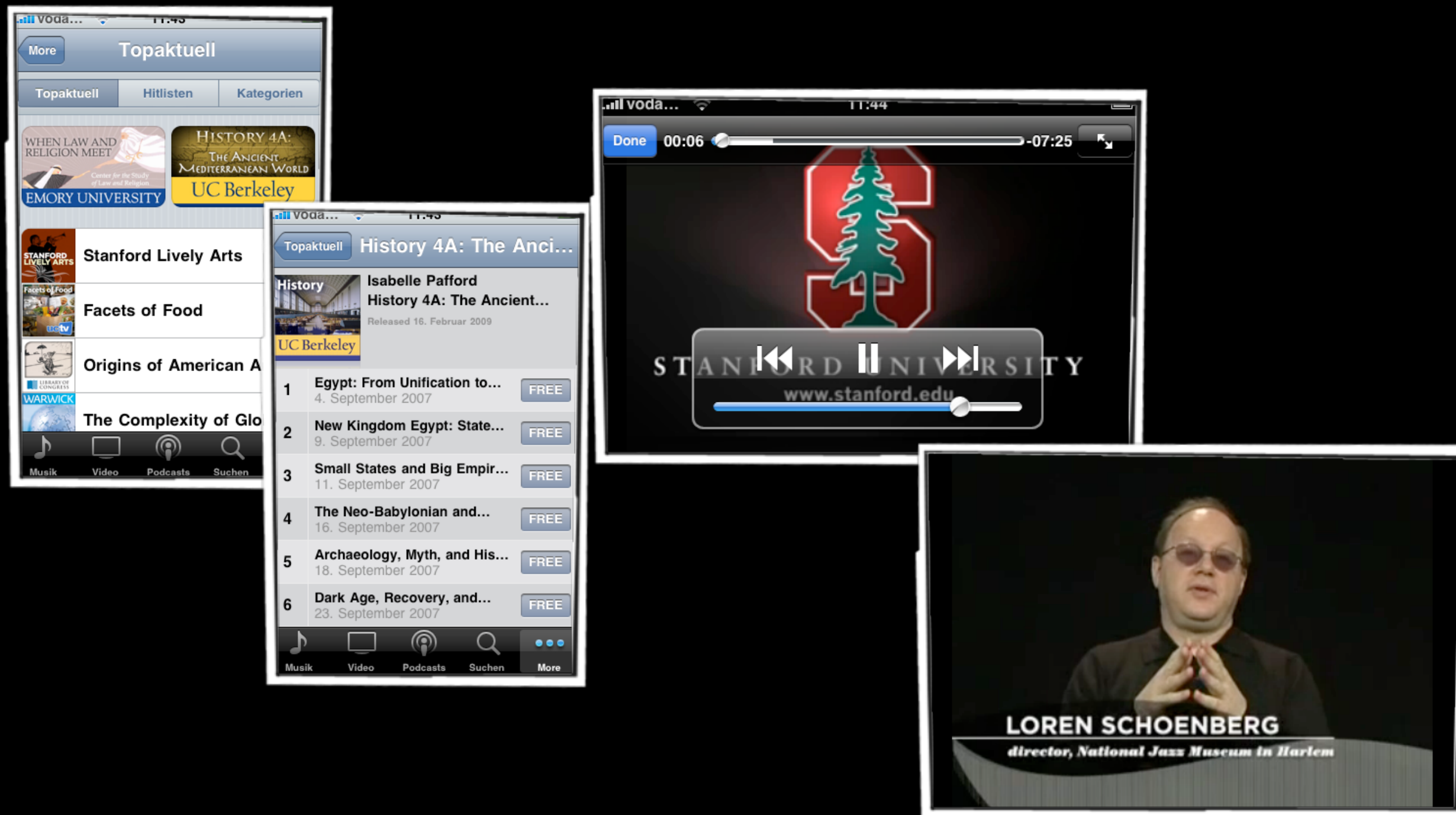
Reflection in Context

framing of learning activities, visualisation of contextual information, context indicators, multi-channel synchronisation

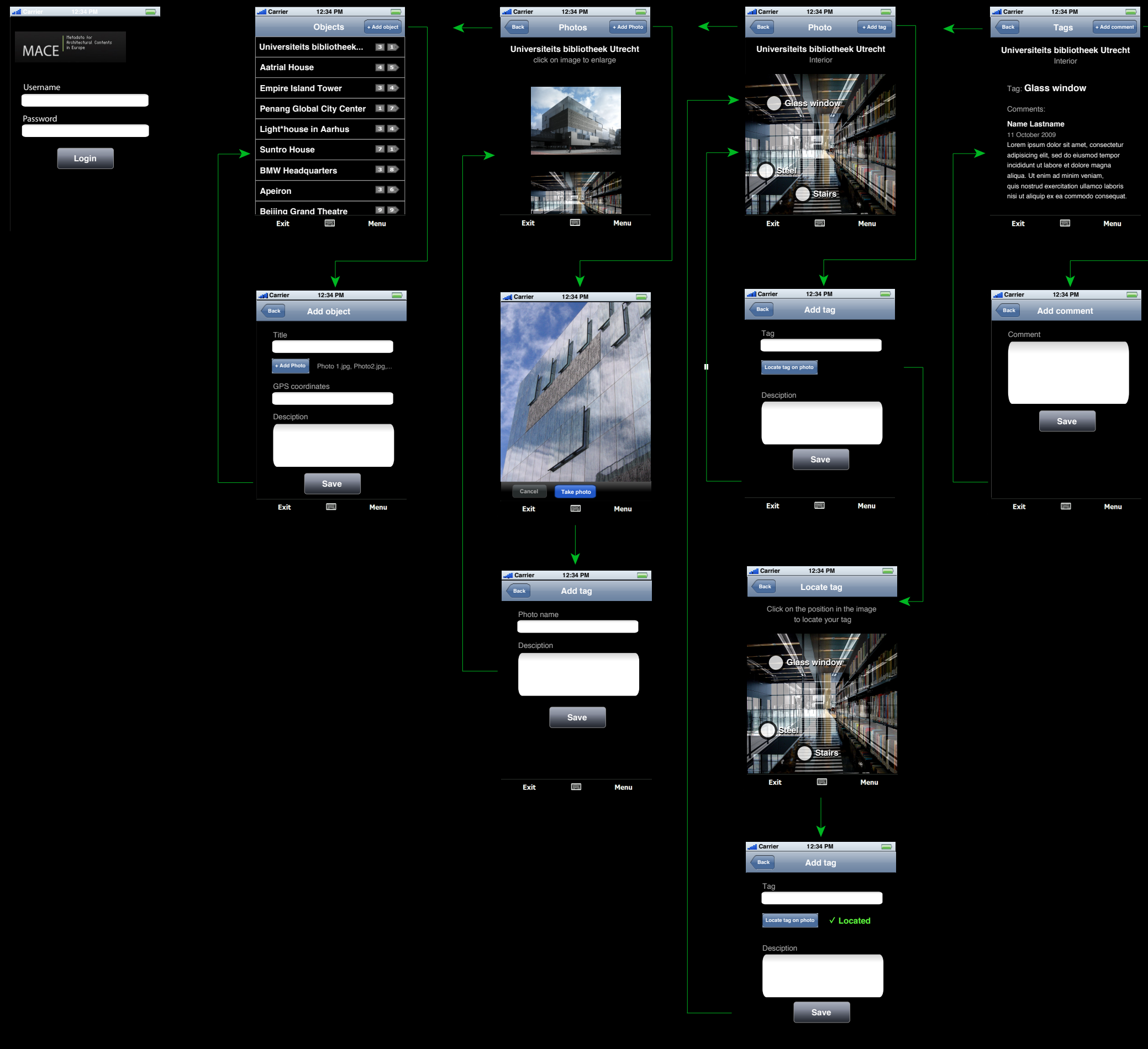
Mobile App Models

- Mobile Learning Content (iTunes U)
- Web-Based Apps with limited sensor access (TeamsPod, ContextBlogger, Mooble)
- Local Contextualised Apps with Sensors and Scanners (Language Learning)
- Map exploration of POI channels (Aloqua)
- Augmented Reality Browsers (Locatory)

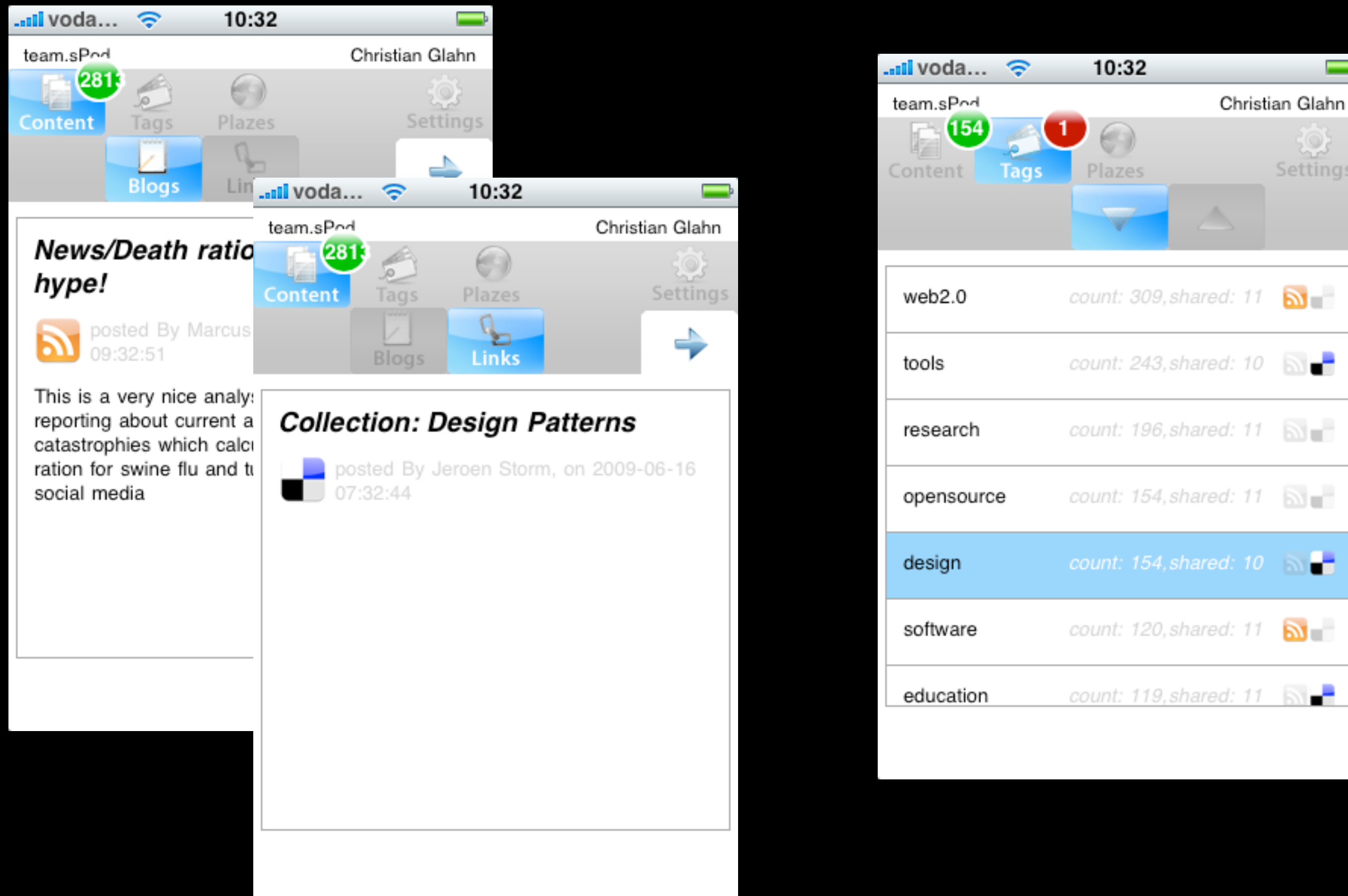
Mobile Learning Content (iTunes U)



Object Annotation: *ContextBlogger*

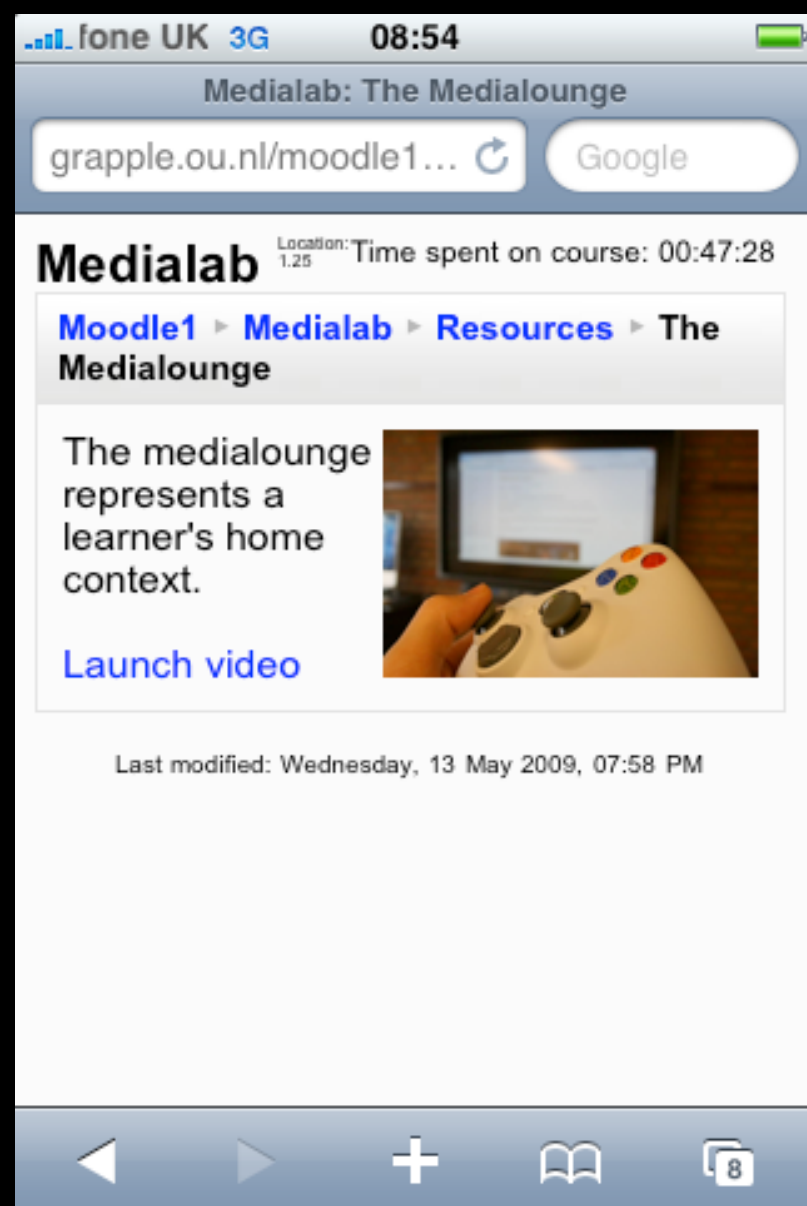


Team Awareness *team.sPod*



Notifications in Mob. Learning

Activities: Mooble



Object Tagging/Augmentation



Location Filtering: *Mobile Language Learning*

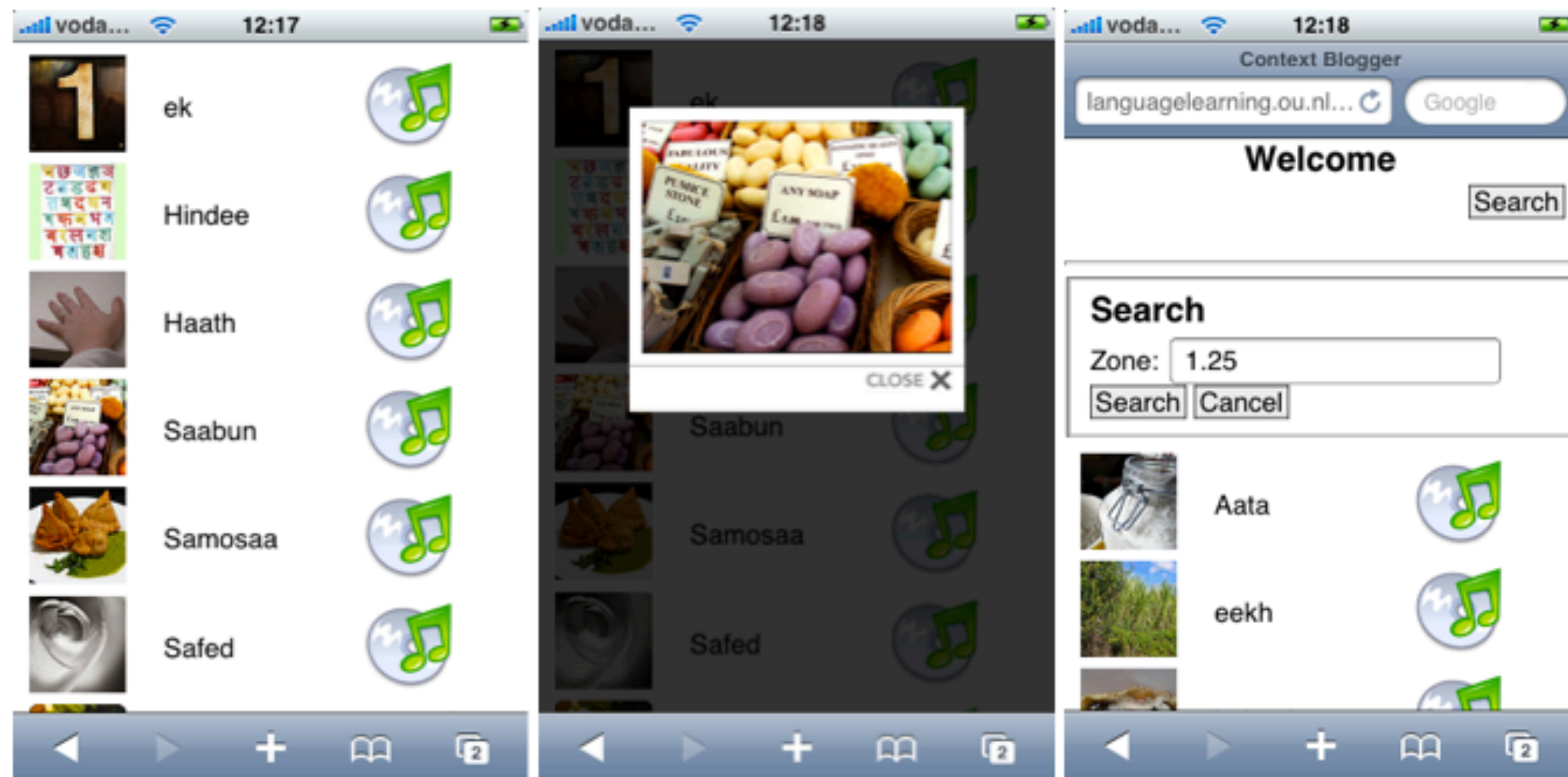
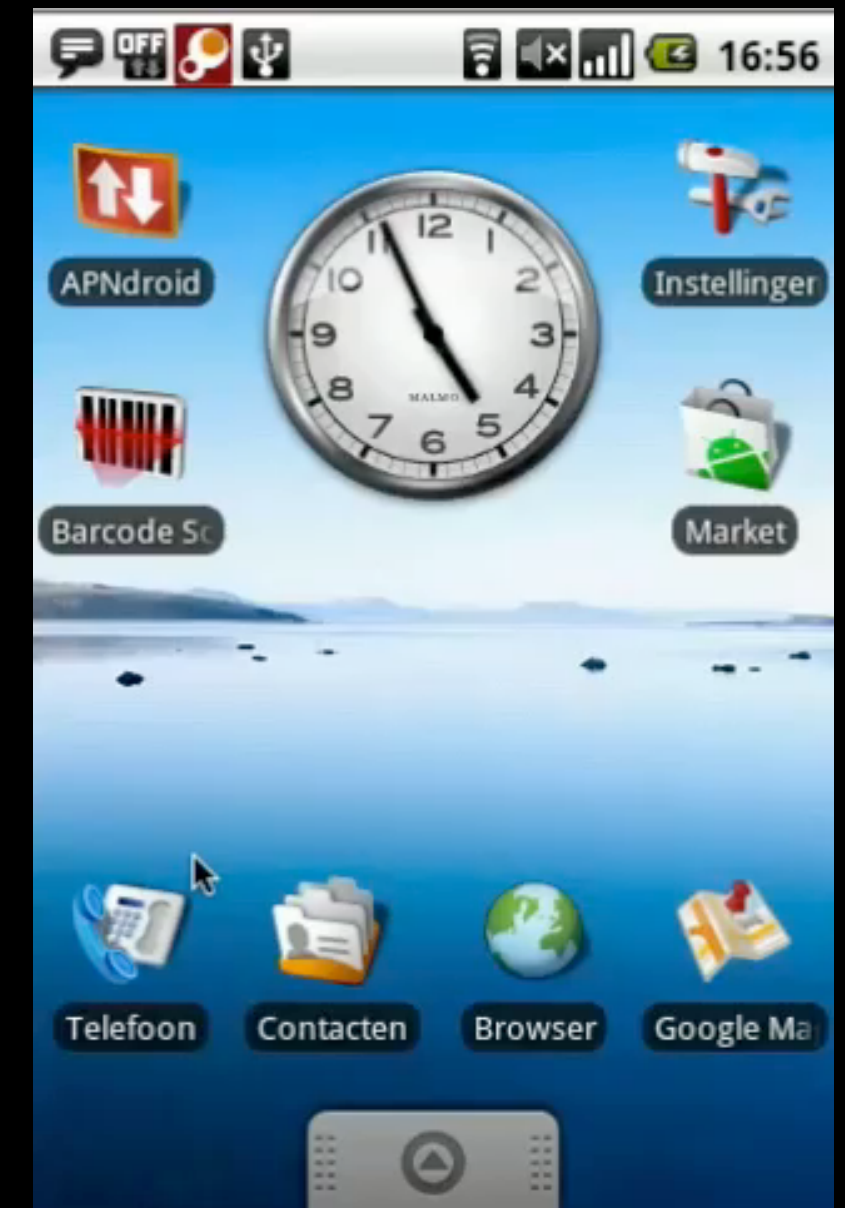
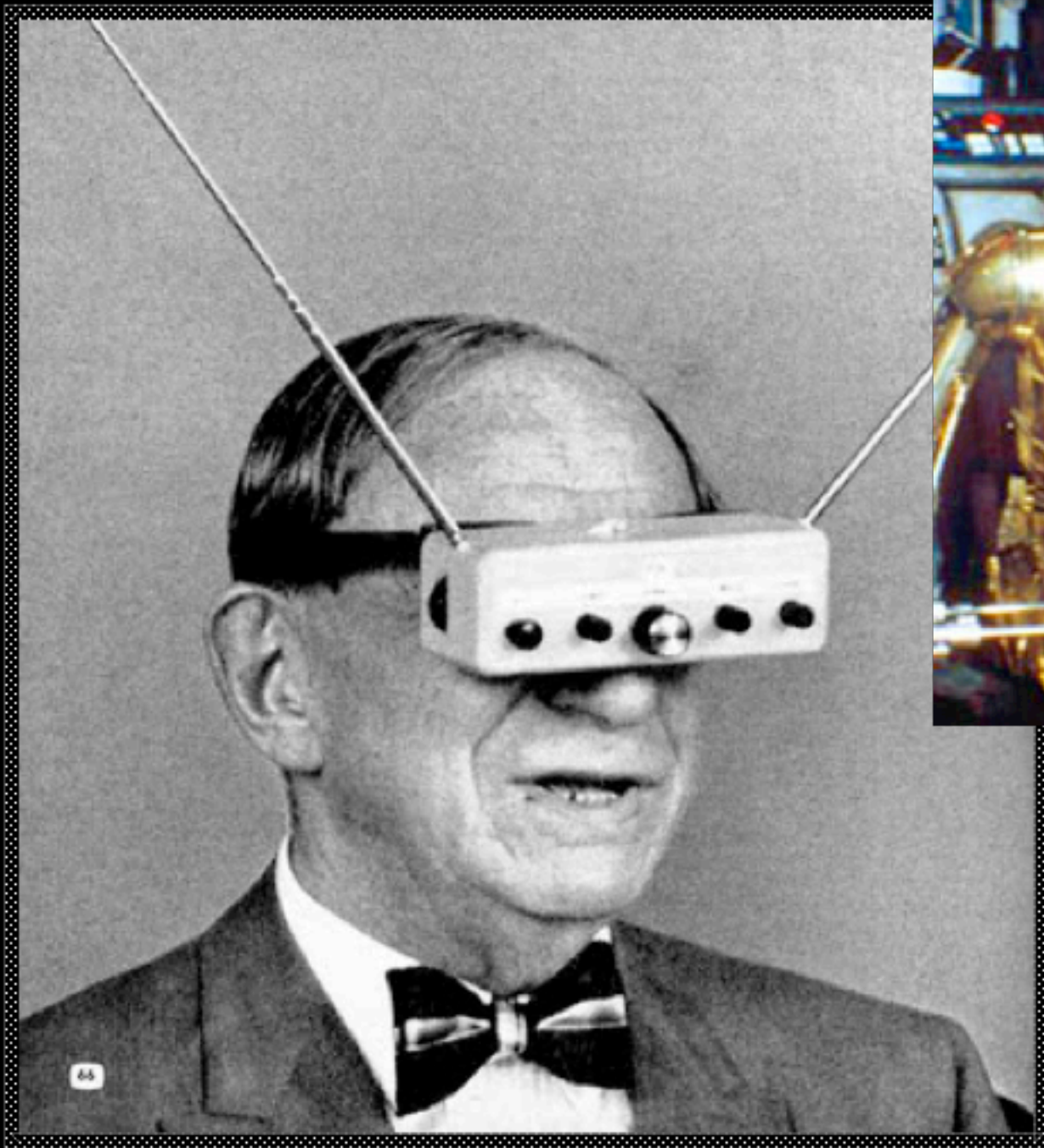


Figure 1 One variation of the language learning software using a room-based search to filter the learning content

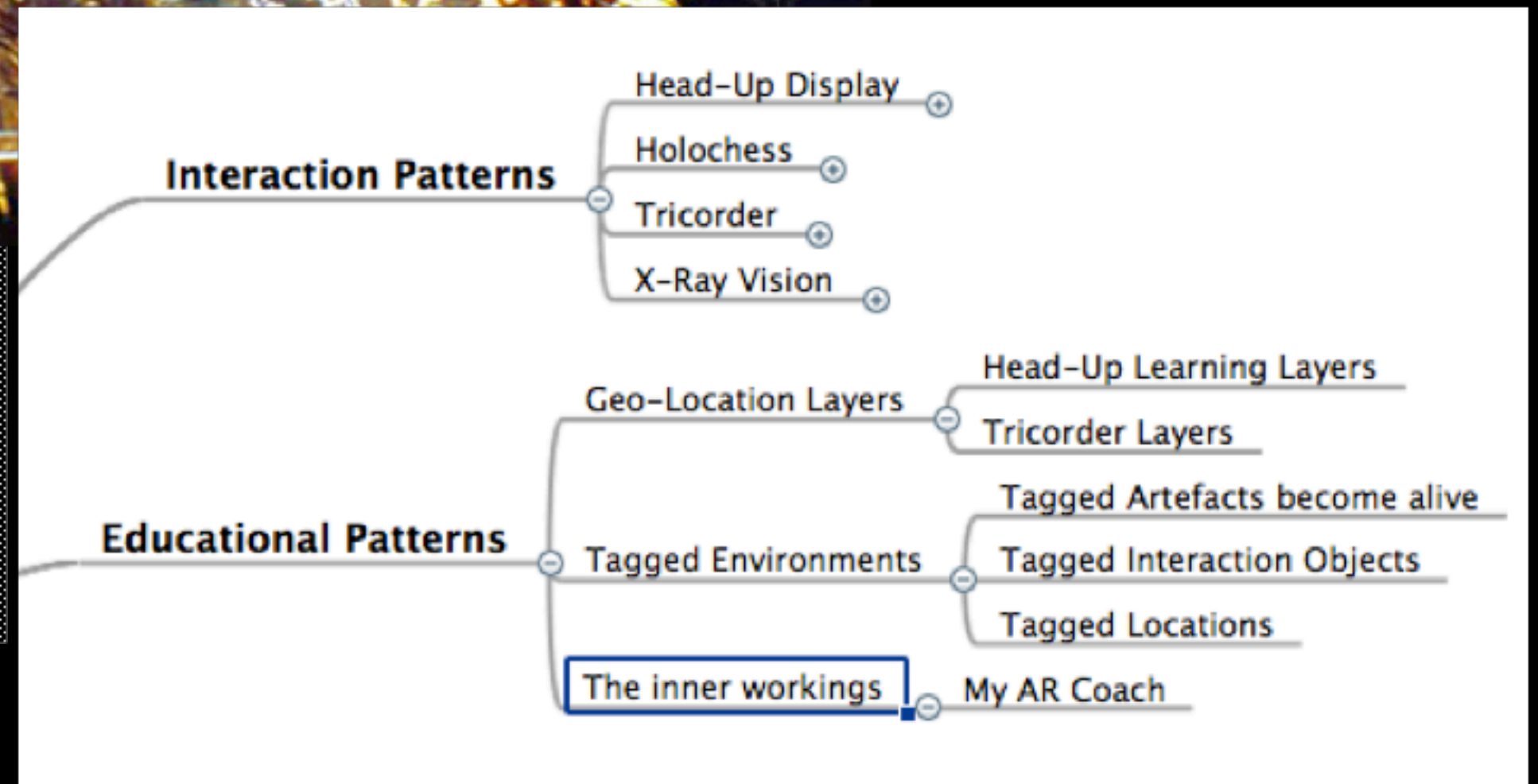
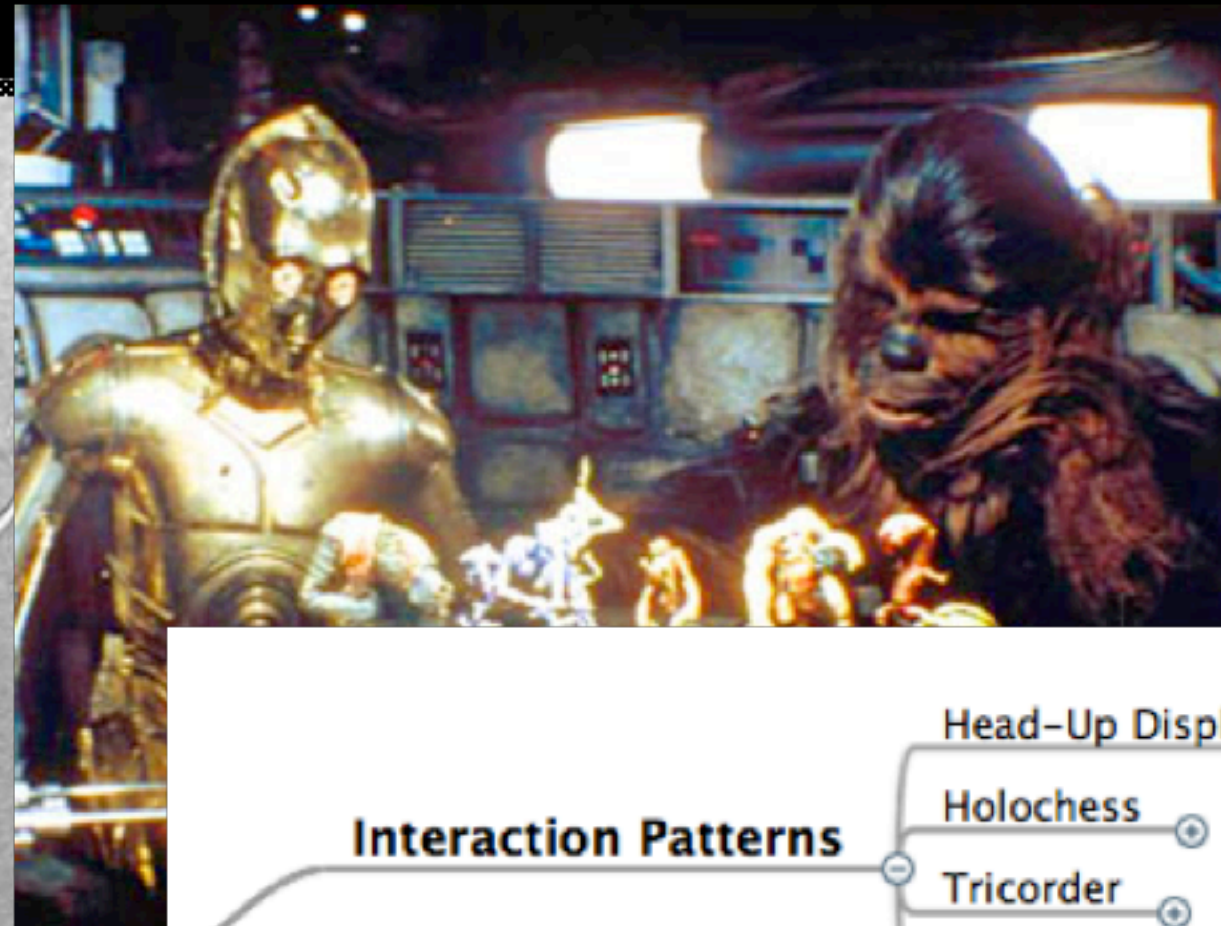
POI Channels



AR4Learning



Courtesy of "Window to The Future" door Steve Kosareff

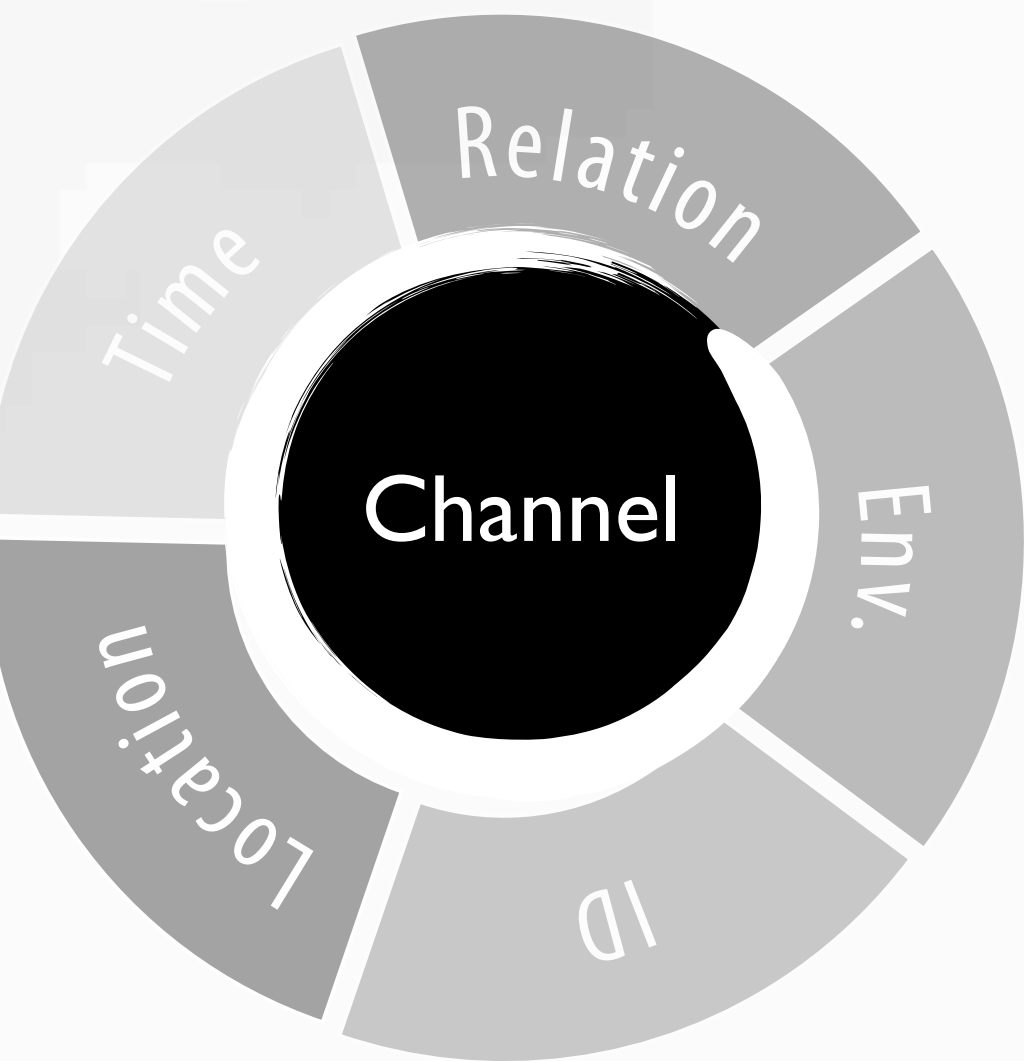


<http://www.uxmatters.com/mt/archives/2009/08/inside-out-interaction-design-for-augmented-reality.php>

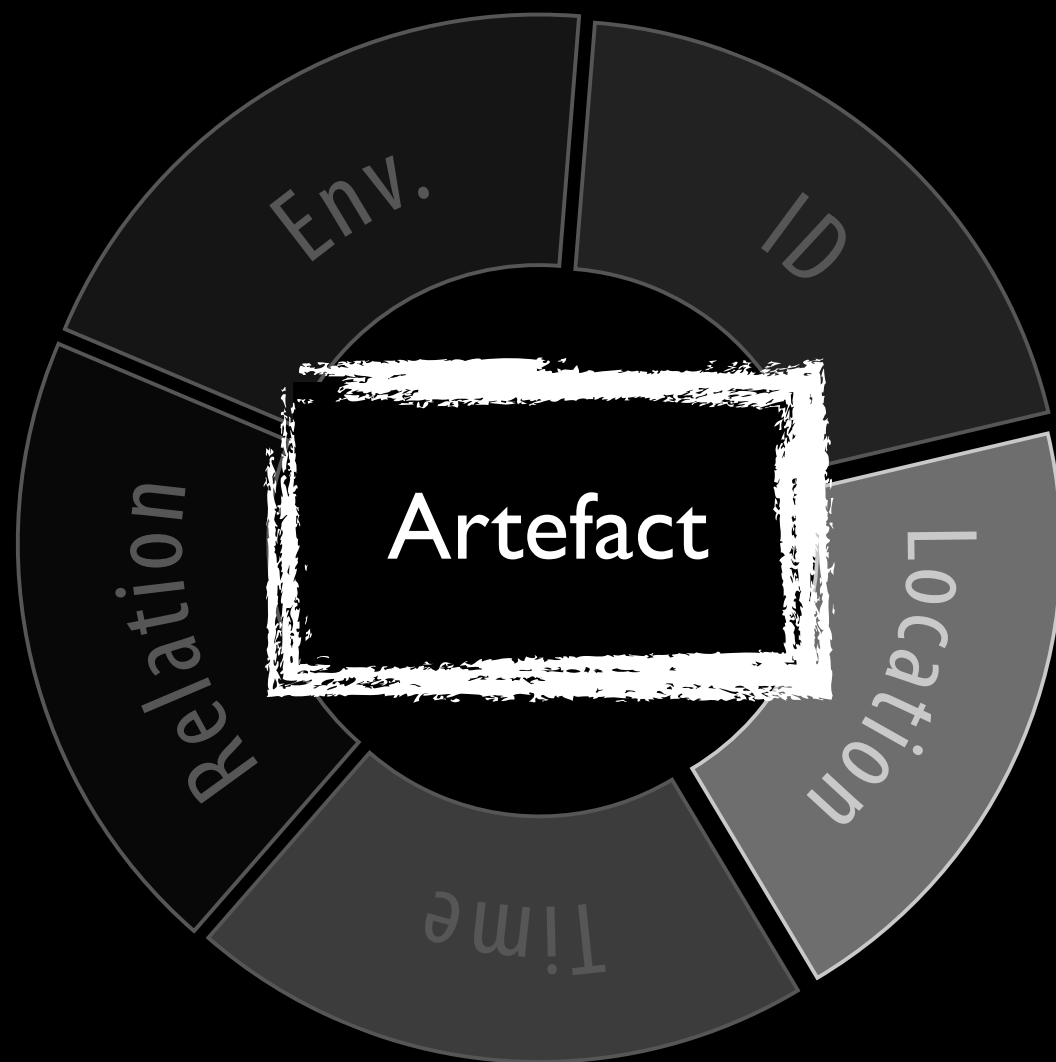
Matching RW and AR: *Locatory*



5: do it your way ...

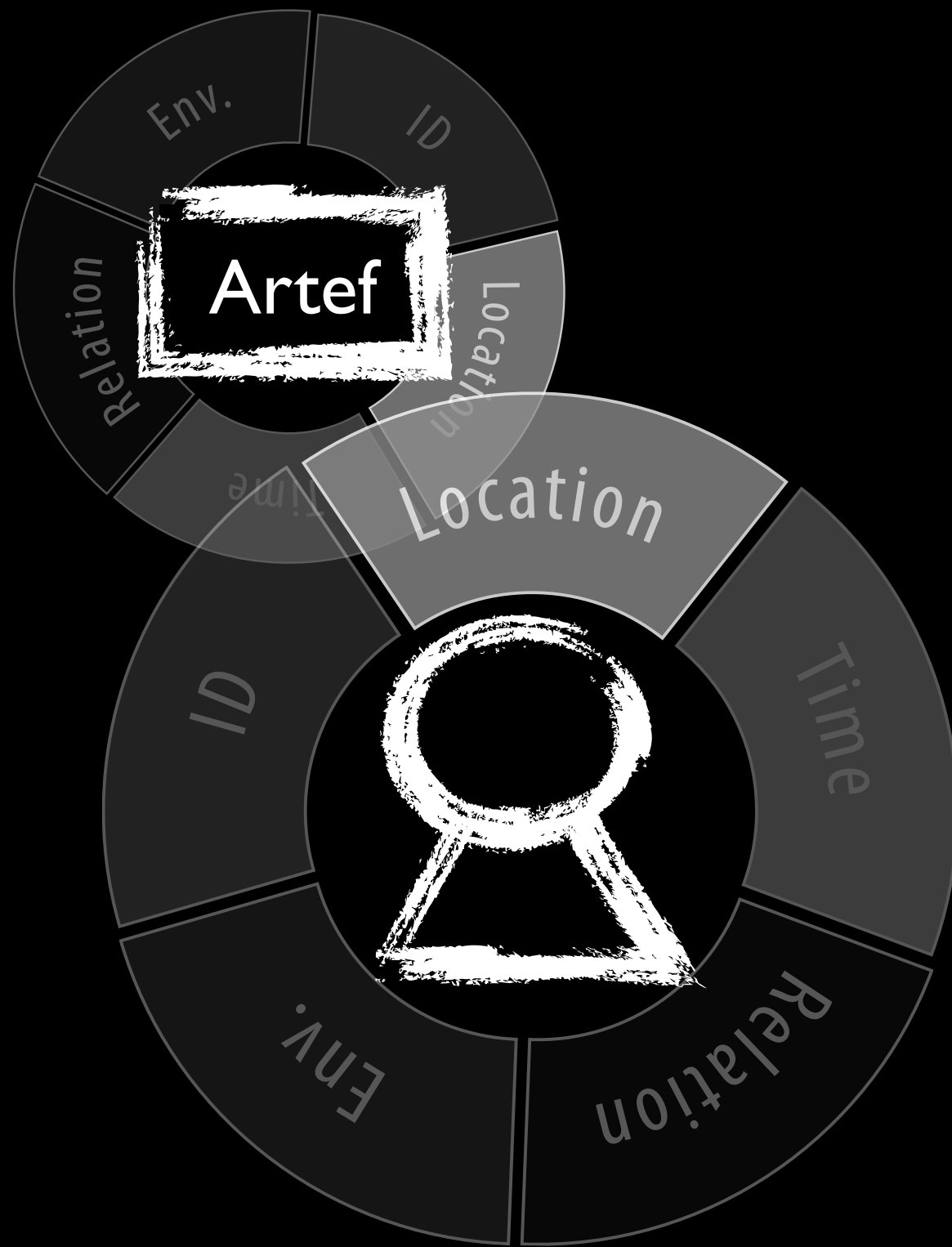


#1 Selecting Artefacts



- **Containers**, Rooms, Buildings
- **Objects**: Cups, Tables, Screen, Machine, Picture, Plant, Computers, Leaflet
- **Positions**, Locations: Views, Perspectives, Zones

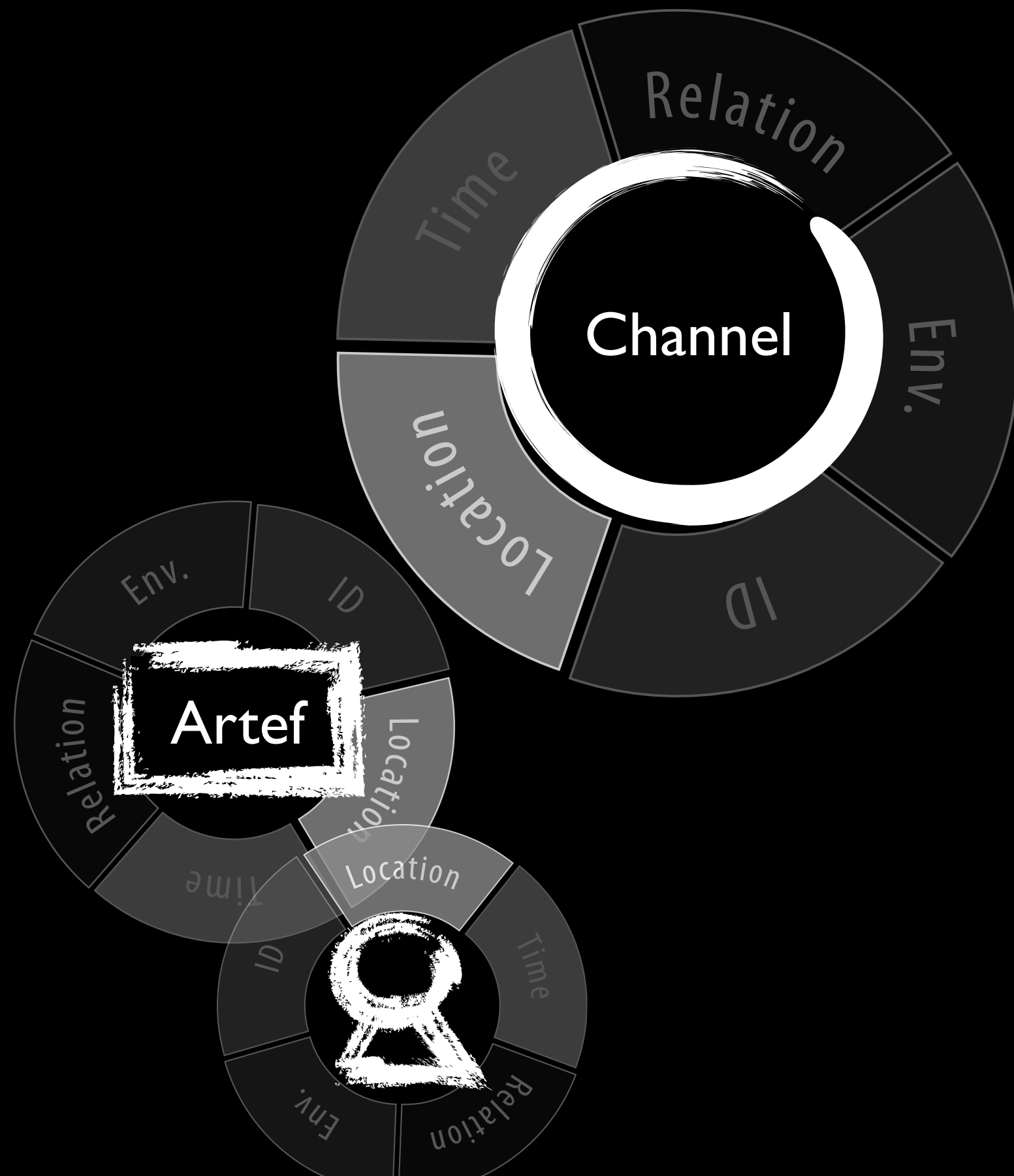
#2 Choosing Activities



- Receive Information: Video, Text, Audio, **MetaInformation**
- Explore: searchInfo, searchMetaInfo, addPerspective, relatedObjects
- Perform: doQuiz, performGroupActivity, do360Performance
- Cooperate: Discuss, Exchnage Views

#3 provide resources

- *Receive Information: Video, Text, ->*
hyerlink on mobile Devices
- Explore: **online services, web forms**
- Perform: **online quiz, task**
- Cooperate: **just instruction**
- Contribute: **create resources !**



| Artefact | Activity | Resource |
|----------|----------|---------------|
| Room | Perform | Instruction |
| Artwork | Listen | AudioFile |
| Cup | Explore | WebForm |
| Food | Discuss | AudioRecorder |



Edited Jan 29, 2010 11:41 PM by Marcus Specht...

☆ winterschool



| identifier of artefact | learning activity | resource |
|------------------------|--------------------------|---|
| 1 | find something on google | http://google.com |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |

Tags

What's Hot

No items tagged with hot.

Recent Changes

winterschool
January 29, 2010

Upcoming

showDown
Feb 1, 2010



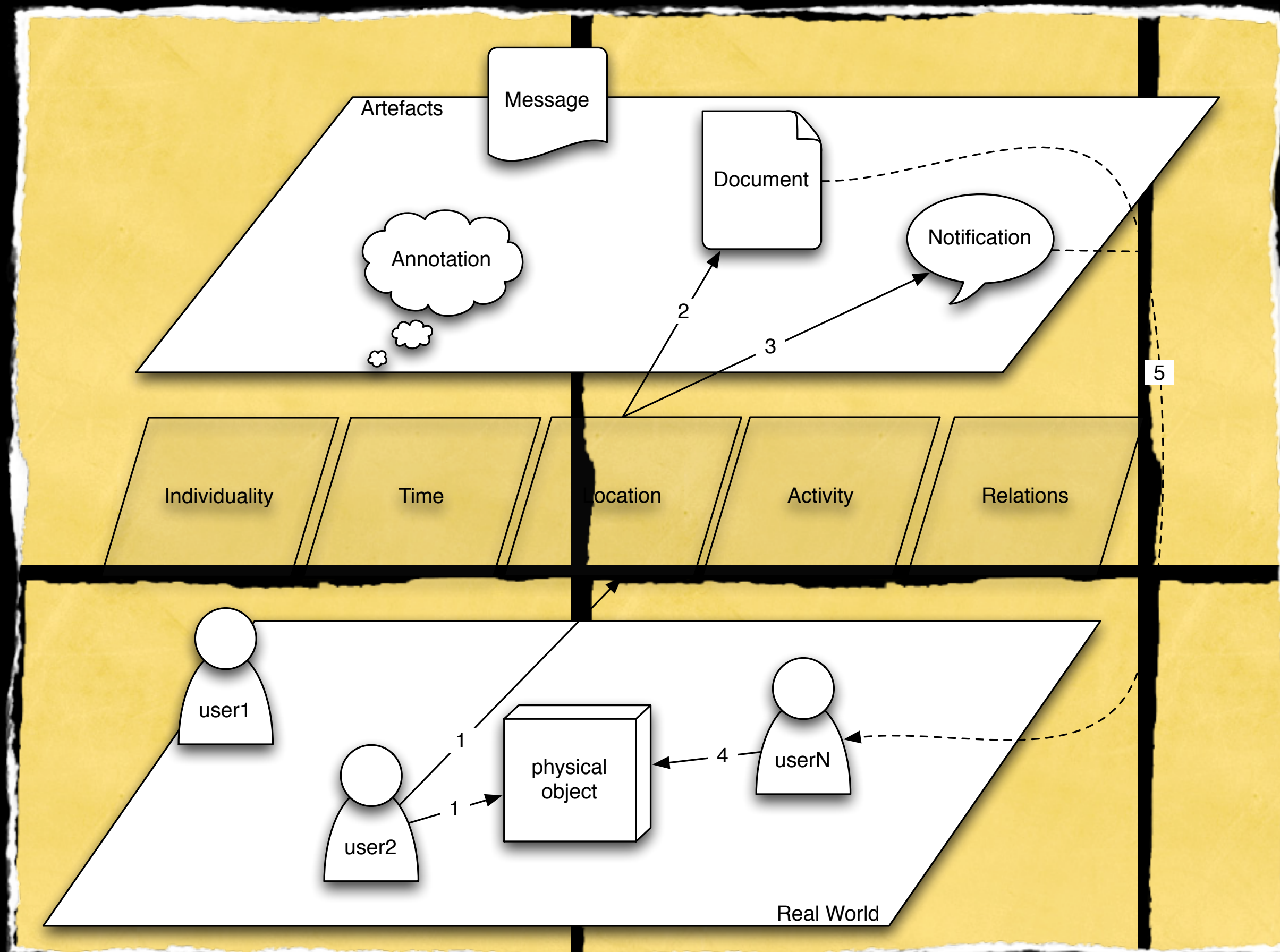
Post It
on real
Objects

B134

A546

A546

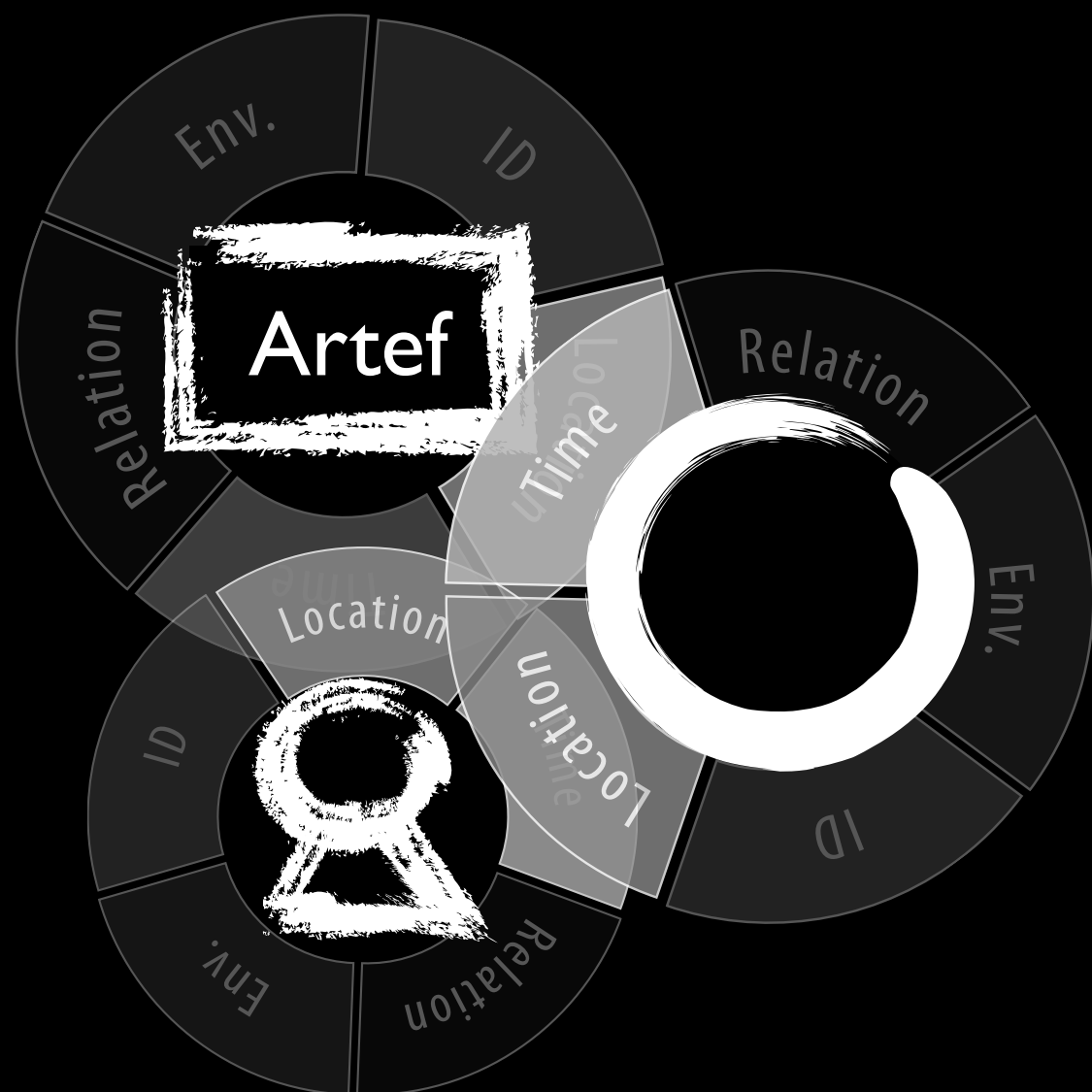
Contextualisation



position in CoffeeRoom

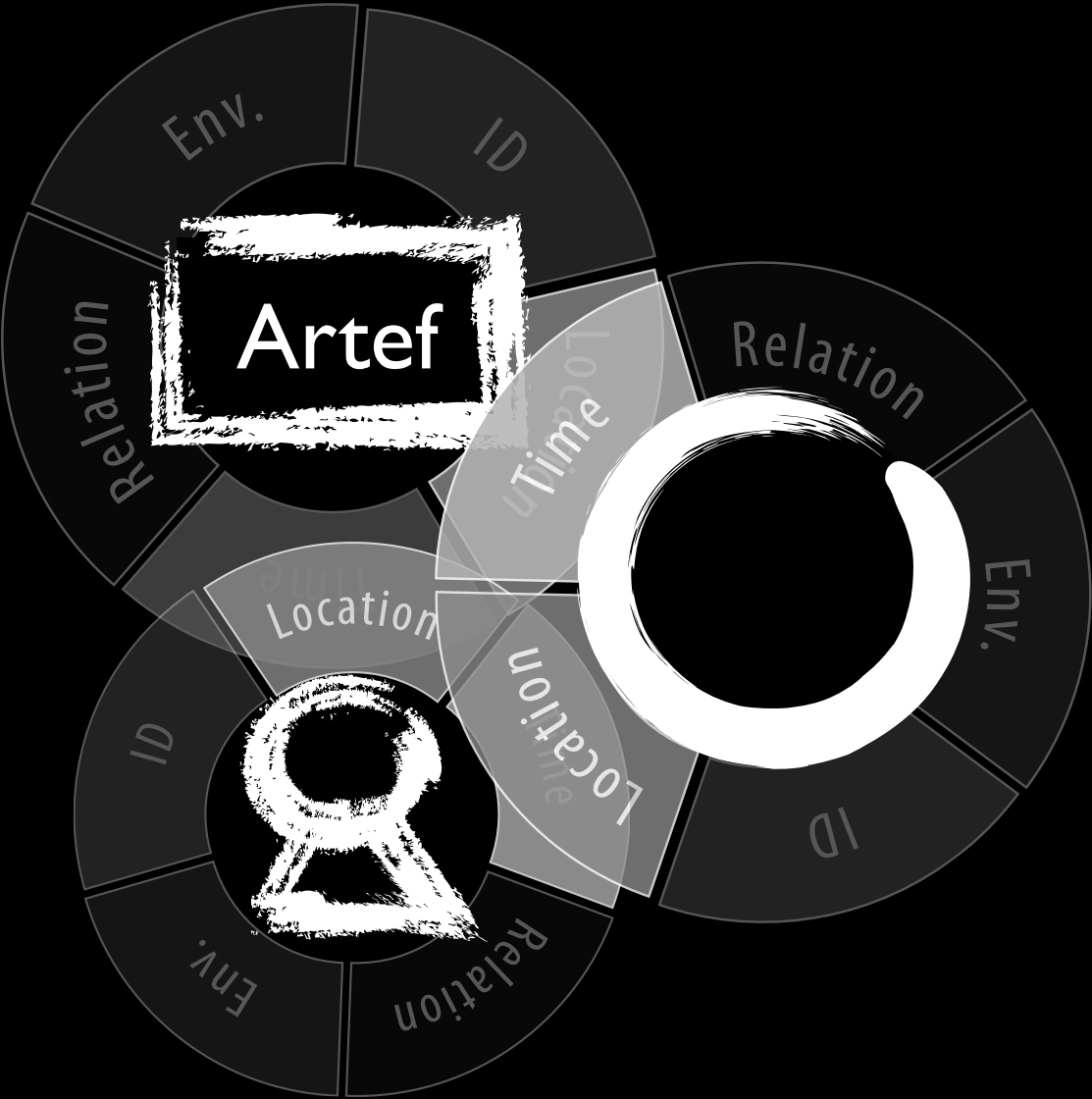
B134

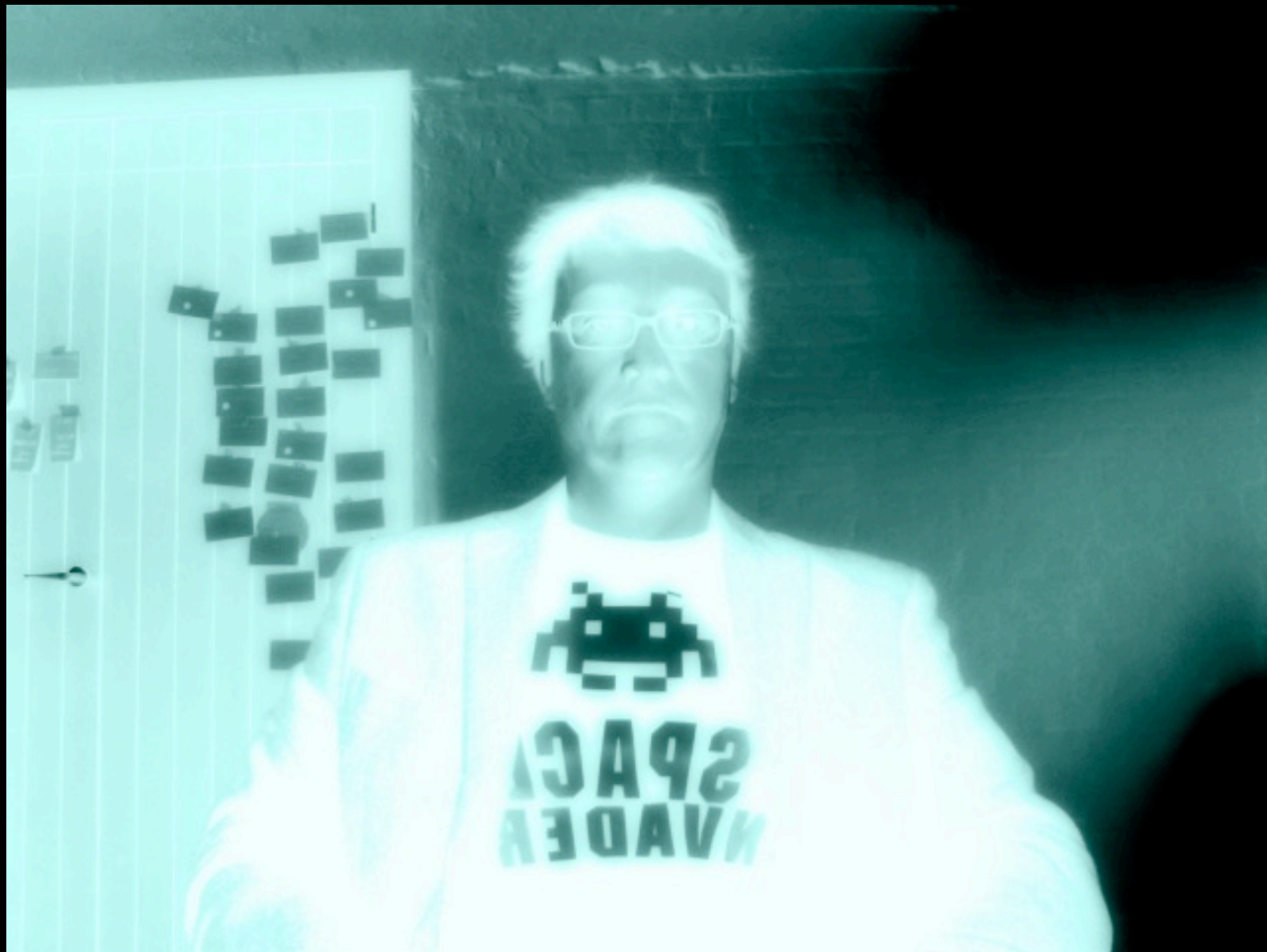
| time | action | loc |
|------|------------------------|-------|
| <9 | viewMountainlight | fixed |
| <12 | discussMountainProfile | fixed |
| <18 | goToLocation#C111 | fixed |
| <24 | performPresentation | fixed |



B133

| | | |
|----------------|-------------------|-------|
| social context | action | id |
| alone | viewMountainlight | fixed |
| group | | fixed |
| friends | | fixed |
| | | |





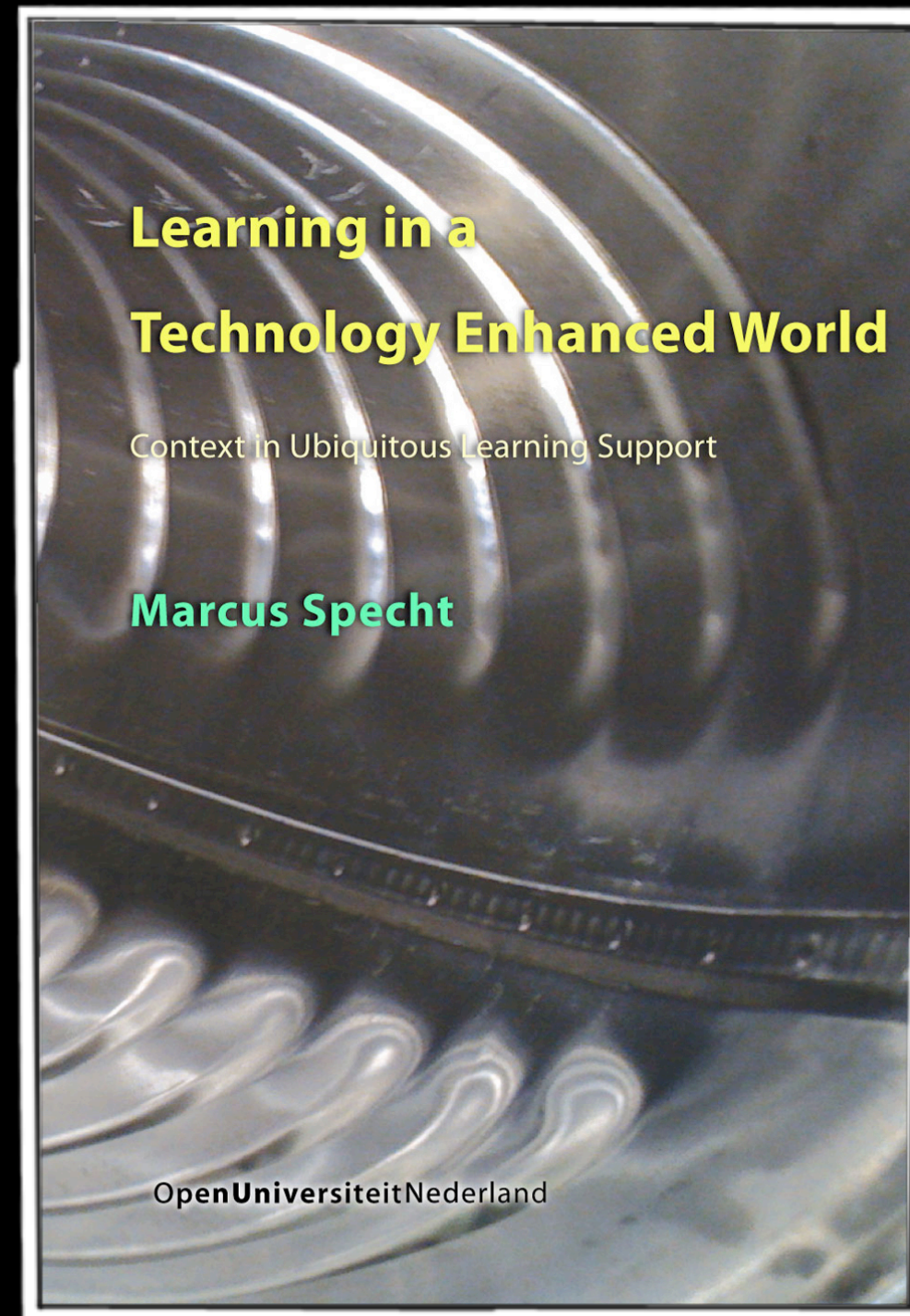
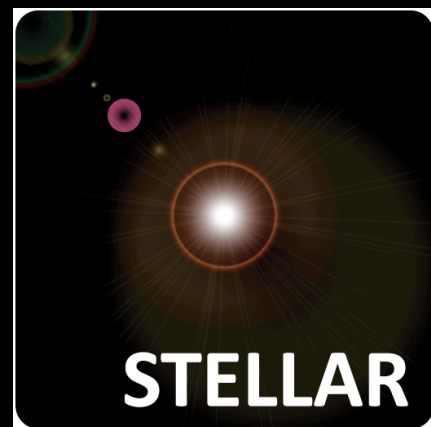
thank you !
marcuspecht.de

celstec.org

dspace.ou.nl

stellarnet.eu

teleurope.eu



<http://hdl.handle.net/1820/2034>